TRUEVISION
A RasterOps Company

TARGA+

INSTALLATION AND REFERENCE GUIDE

TARGA+ Installation and Reference Guide

Truevision, Inc.
7340 Shadeland Station
Indianapolis, IN 46256

Release 4.0, March 1993
Copyright 1991, 1992, 1993 Truevision, Inc.

WARRANTY DISCLAIMER

The authors, Truevision Inc., and its parent company RasterOps Corp., make no warranties, express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose, regarding the software and hardware. The authors, Truevision Inc., and its parent company RasterOps Corp., does not warrant, guarantee or make any representations regarding the use or the results of the use of the software and hardware in terms of its correctness, accuracy, reliability, currentness or otherwise. The entire risk as to the results and performance of the software and hardware is assumed by you. The exclusion of implied warranties is not permitted by some jurisdictions. The above exclusion may not apply to you.

In no event will Truevision or RasterOps, and their directors, officers, employees or agents (collectively Truevision) be liable to you for any consequential, incidental or indirect damages (including damages for loss of business profits, business interruption, loss of business information, and the like) arising out of the use or inability to use the software and hardware even if Truevision has been advised of the possibility of such damages. Because some jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitations may not apply to you. Truevision liability to you or actual damages from any cause whatsoever, and regardless of the form of the action (whether in contract, tort (including negligence), product liability or otherwise), will be limited to $50.

LIMITED WARRANTY

This limited warranty is given to you by Truevision, Inc. and extends only to the original customer purchase of your TARGA+ videographics card.

What the Warranty Covers and How Long

If this product is defective in material or workmanship, return the TARGA+ card **within one year** of the original date of purchase and we will repair or replace it (with the same or an equivalent model), at our option, with no charge to you.

How to Exercise Your Warranty or Obtain Service

If you encounter problems with your TARGA+ card, contact your dealer or VAR first. They will provide you with assistance, or obtain an RMA Number from Truevision for your product. Then you may arrange for service or for warranty repair by shipping your TARGA+ to:

Truevision, Inc.
7340 Shadeland Station
Indianapolis, IN 46256-3919

There will be no charge for warranty service except for your prepaid shipping cost to our site. We suggest that you retain the original packing material in case you need to ship your TARGA+ to us. When returning it to our site, please be sure to include:

Name
Address
Phone Number
Dated Proof of Purchase
RMA Number
Description of the Problem

We cannot assume responsibility for loss or damage during shipping. After we repair or replace (at our option) your TARGA+ card under warranty, it will be shipped back to you at no cost.

What This Warranty Does Not Cover:

This warranty does not cover damage resulting from accidents, alteration, failure to follow instructions, misuse, unauthorized service, fire, flood, acts of God, or other causes not arising out of defects in material or workmanship.

This page intentionally left blank.

Table of Contents

Chapter 1 - TARGA+ Installation 1-1
Hardware and software requirements 1-1
Introduction to TARGA+ 1-2
Overview 1-3
Differences between the TARGA and TARGA+ board 1-4
Quick Installation for Power Users 1-5
Installing TARGA+ for use with Microsoft's Video for Windows™ only 1-5
Installation for Video for Windows™ Users 1-5
Step 1 - Turn computer off and remove cover 1-6
Step 2 - Discharge static and prepare slot 1-7
Step 3 - Locate switches on the TARGA+ 1-8
Step 4 - Set the SW1 Switches 1-9
Step 5 - Set the SW2 Switch 1-12
Step 6 - Set the SW3 Switches 1-14
Step 7 - Insert TARGA+ into slot 1-16
Step 8 - Connect VGA board to TARGA+ 1-17
Step 9 - Replace cover and check cables 1-22
Step 10 - Review types of connectors 1-23
Step 11 - Connect your monitor 1-24
Step 12 - Connect your video source 1-29
Step 13 - Installing the TARGA+ Setup Software 1-31
Running the demo 1-36

Chapter 2 - Setup for classic TARGA and TARGA+ Applications 2-1
TARGA+ Configuration Program 2-1
Mouse Operation 2-1
Keyboard Operation 2-1
How do I get the board to respond? 2-1
What if I only have a single monitor? 2-2
Invalid Options 2-2
What has to be set up to run TARGA+ applications? 2-2
What has to be set up to run classic TARGA applications? 2-2
The TCONFIG menus 2-4

Chapter 3 - Setup for VGA Pass Through 3-1
TPLUSTSR 3-2

Chapter 4 - Setup Software for Using Windows 3.0 / 3.1 4-1
Overview 4-1
Installing the TARGA+ Windows Driver 4-2

Chapter 5 - Setup Software for using Autodesk Products 5-1
Overview 5-1
Supported modes 5-1
AutoCad 5-2
Autodesk 3D STUDIO 5-3
ANIMATOR PRO VERSION 1.0 5-4
ANIPLAY 5-6
ANICONV 5-7

Chapter 6 - EISA Configuration File 6-1
Overview 6-1

Chapter 7 - Chroma Key Capture Demonstration 7-1
Introduction - Chroma Key Capture 7-1
Lighting tips 7-3
Simple lighting instructions 7-4

Chapter 8 - Demo TIPS 8-1
Introduction to Demo TIPS 8-1
Features of Demo TIPS 8-2
The complete TARGA+ TIPS features 8-3
Getting started with Demo TIPS 8-4
Starting Demo TIPS 8-7
Important Concepts 8-8
Troubleshooting - Demo TIPS 8-55
Basic Terminology - Demo TIPS 8-57

Chapter 9 - TARGA+ Control Panel 9-1
Introduction - control Panel 9-1
Hardware and software requirements 9-3
Software installation 9-4
Starting the TARGA+ Control Panel 9-4
Control Panel - Main Screen 9-5

VIDI/O Section 9-6
INPUT/OUTPUT Section 9-8
MASTERKEY Section 9-12
BLENDER Section 9-16
CHROMAKEY Section 9-18
Performing a successful chromakey 9-20

Chapter 10 - TARGA+ Capture Utility for Windows 10-1
Introduction - TARGA+ Capture Utility 10-1
File menu items 10-3
Edit menu items 10-5
Option menu items 10-6

Chapter 11 - ShowMe Image Converter 11-1
Using ShowMe 11-1
File Menu 11-2
Open dialog box 11-2
Save dialog box 11-3
Print dialog box 11-4
Options menu 11-5
Help menu 11-5

Appendix A - Glossary A-1
Appendix B - Cables and Connectors B-1
Appendix C - Troubleshooting C-1
Appendix D - Common Questions D-1
Appendix E - TARGA+ Specifications E-1
Appendix F - Customer Support F-1
Appendix G - TARGA+ DOS Driver G-1
Appendix H - TMODE Display Resolutions H-1
Appendix I - The Single-Monitor Solution I-1
Index i

Chapter 1 - TARGA+ Installation

HARDWARE AND SOFTWARE REQUIREMENTS

The following hardware and software is needed to use the TARGA+ board.

- AT style (ISA bus) compatible computer with 640K of RAM. (Check software application for additional EMS requirements.)
- A TARGA+ board.
- (Recommended) An **analog RGB multi-scan** rate monitor with horizontal scan rates between 15 and 35 KHz, and vertical scan rates between 25 and 100 Hz. Or, a **composite** video monitor. *In order to display live video on a monitor, the monitor must be capable of scanning at 15.7KHz. Therefore, hi-res monitors and VGA monitors will not display video.* If you choose not to get a multi-scan monitor, the following are the standard frequencies for each of the video modes:

For standard **NTSC** operation:	(15.734 KHz Horizontal Scan Rate, 59.9401 Hz Vertical Rate)
For standard **PAL** operation (to use with TARGA+ board - PAL version):	(15.625 KHz Horizontal Scan Rate, 50.000 Hz Vertical Rate)
For standard **Hi Res** operation such as 1024x768, or 800x600 resolution:	(24.0238 KHz Horizontal Scan Rate, 59.9845 Hz Vertical Rate)
For standard **VGA pass through & VGA Overlay** operation:	(31.5KHz Horizontal Scan Rate, 59-70 Hz Vertical Rate)

- An RGB or COMPOSITE or S-VIDEO source such as an RGB video camera or a VCR or an S-Video VCR
- Screwdriver
- TARGA+ Setup Software Diskettes
- Pointing Device - mouse or tablet
- Hard disk drive - recommended
- DOS (3.1 or later version)

INTRODUCTION TO TARGA+

The TARGA+ sets new standards for price, performance, and quality in computer-based graphics. To continue the TARGA history, the TARGA+ not only offers the capture and display capabilities of the original TARGA, but brings you these exciting feature extensions:

- PAL support. (PAL version board only)
- Non-interlaced display resolution for flicker-free graphics.
- More than thirty resolutions.
- A high quality on-board encoder & decoder that allows composite video input and output, S-VHS video input and output, as well as maintaining RGB input and output.
- Linear keying - insertion of live or still video with the capability of blended imaging.
- Chroma keying - selection of a "live video object of interest" over a still color image. It is the opposite of "video overlay" (graphics on live video). The live object of interest is selected by using a blue screen behind the object.
- VGA pass through - offers a one-monitor solution. (The single-monitor-solution cannot have S-Video devices attached to the output of the TARGA+. Although multiple devices can be connected to the output of the TARGA+, there is one exception; you cannot have both an S-Video device and an H/V sync device connected at the same time because switch SW2 can only be set for S-Video **or** H/V.)
- VGA overlay - capability of overlaying VGA graphics on TARGA+ non-interlaced output. (VGA overlay is NOT recordable.)
- Advanced genlock circuitry.
- Blending/mixing - ability to fade and dissolve between still or live video.

The speed, color quality, and spatial resolution of the TARGA+ make it ideal for use in broadcasting, video production, computer-aided design, and many other applications.

OVERVIEW

Truevision produced a board called the TARGA which came in four different pixel depth configurations and was named accordingly. These boards were called the TARGA 8, the TARGA 16, the TARGA 24, and the TARGA 32.

Unlike its predecessor, the TARGA+ can be configured to run as a TARGA 8, TARGA16, TARGA 24, or TARGA 32. (The configuration options available depend upon the amount of memory installed on the TARGA+. This amount is specified on the outside of the TARGA+ container.)

Once the TARGA+ is installed in your system, you can run either original TARGA software or TARGA+ software.

> **Original TARGA software is defined** as software developed to run on the Truevision boards called the TARGA 8 board, the TARGA 16 board, the TARGA 24 board, or the TARGA 32 board. Check the software documentation to verify the particular board type.
>
> **TARGA+ software is defined** as software specifically developed to run on the TARGA+ board. Check the software documentation for verification.

Once you have installed the board and the setup software, this is what you will do to run original TARGA or TARGA+ applications. You will set up the display parameters or mode in which to run your application through the TARGA+ configuration program known as TConfig. With this single program you can put your TARGA+ into an operating mode of your choice and save this "mode." The mode is saved as a batch file (.bat). Then, when you are ready to start your application, you invoke this mode by typing the name of the batch file at the DOS prompt.

DIFFERENCES BETWEEN THE TARGA AND TARGA+ BOARD

1. The DIP switches on the new TARGA+ board do NOT control the same functions as the switches on the original TARGA boards.

2. DIP switches no longer determine the Memory Segment Address. This address is now software selectable.

3. Only a TARGA+ 16/32 or 64 can be configured as a TARGA 24 or a TARGA 32. If your software does run on multiple board types, be sure to use the correct pixel depth and operation mode in the TConfig configuration program.

4. Video input - pins 6 and 7 - are no longer tied together as they were in the original TARGA design. Truevision cables CA-4, CA-6, and CA-7 separate Composite Video (pin 6) from Composite sync (pin 7).

5. The configuration program, TConfig, can only be used on a TARGA+. It does not work on a classic or original TARGA board.

QUICK INSTALLATION FOR POWER USERS

If you are familiar with installing graphics boards and are willing to install the TARGA+ with the following default parameters, then you can simply insert the board in your computer and proceed to the section titled "Installing the TARGA+ Setup Software."

Default parameters:

1. I/O base address at 0x220.
2. No S-Video equipment attached to output of TARGA+.
3. No software interrupts required.

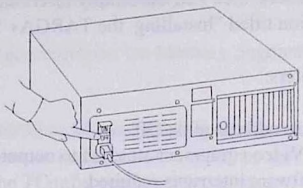
Remember, your application software will not function without the appropriate Setup Software.

INSTALLING TARGA+ FOR USE WITH MICROSOFT'S VIDEO FOR WINDOWS ONLY

If you only need to use the TARGA+ board as the capture device for Microsoft's Video for Windows application, then follow the list of steps below. This installation will allow you to set up the appropriate switches, connect your video input device, and install the setup software. It skips setting the S-Video switch (since video input is software selectable), skips connecting a VGA card, checking out connectors and attaching a video output device.

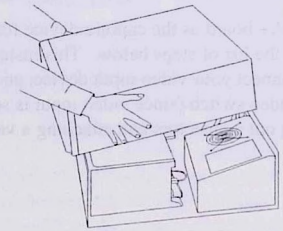
Step 1
Step 2
Step 3
Step 4
Skip Step 5
Step 6
Step 7
Skip Step 8
Step 9
Skip steps 10 and 11
Step 12
Step 13

STEP 1 - TURN COMPUTER OFF AND REMOVE COVER



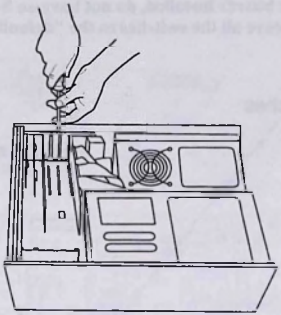
A. Turn your computer OFF. Installing the TARGA+ board with the power ON will damage the board and/or your computer.

Never insert or remove the TARGA+ board while your computer is turned ON.



B. Remove the computer cover. Check your owner's manual for instructions on how to remove the cover.

STEP 2 - DISCHARGE STATIC AND PREPARE SLOT



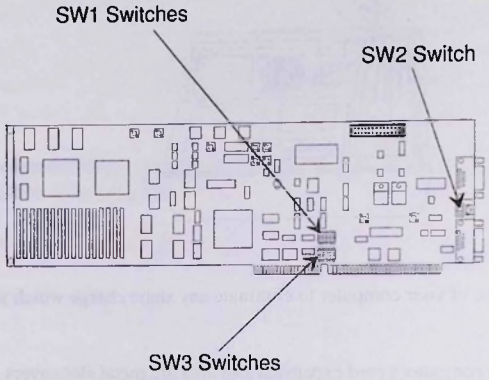
A. Touch the metal case of your computer to eliminate any static charge which you may have built up.

B. At the back of your computer's card expansion slot area are metal slot covers. Simply unscrew the slot cover for the slot where you intend to insert the TARGA+. (You can plug the TARGA+ into any empty slot inside your computer, but for improved performance choose a 16-bit slot.)

C. Save the screw since you will use it later to secure your TARGA+ board.

STEP 3 - LOCATE SWITCHES ON THE TARGA+

If you do not have other graphics boards installed, do not have an S-Video monitor, and do not want to use interrupts, you can leave all the switches in the "default" position and proceed to Step 7.



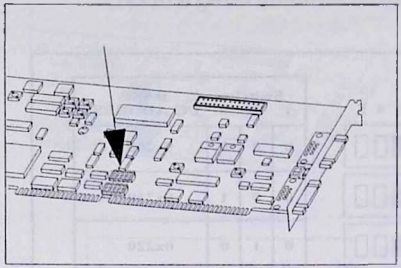
Pick up the TARGA+ and find the switches labeled SW1, SW2, and SW3.

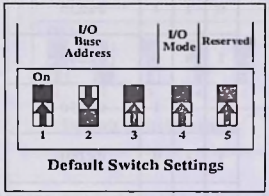
SW1 controls the I/O base address and the I/O mode. Default is 0x220 and TARGA compatible mode: UP, DOWN, UP, UP, UP.

SW2 allows you to choose between H/V sync or S-Video out. Default is H/Vsync: DOWN. (Due to the limited number of pins on the output connector, both H/V sync and S-Video are not available simultaneously. This switch controls which of these two types of signals is available.)

SW3 controls special interrupts to the host computer. Default is no interrupts: DOWN, DOWN, DOWN, DOWN, DOWN.

STEP 4 - SET THE SW1 SWITCHES

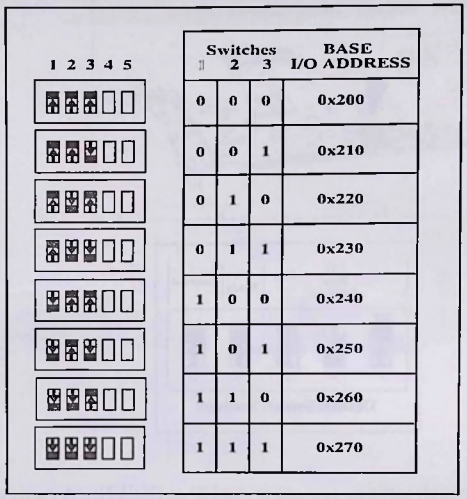




Notice that there are 5 switch settings you can move UP or DOWN. (A paper clip with one end opened makes an ideal tool for moving the switches.)

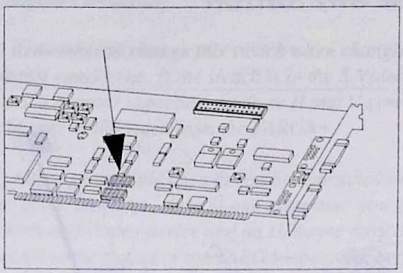
1. Switch settings 1-3 represent the base I/O address space. (Just as your home address identifies where you live, so the base I/O address is the number that identifies where your computer can locate the TARGA+. In the case of multiple TARGA+ boards, each one will have its own address.) If you do not have other graphics boards in your computer system, you should be able to use the default address 0x220 (denotes a hexadecimal value) and set your switches as shown in the default switch diagram: UP, DOWN, UP.

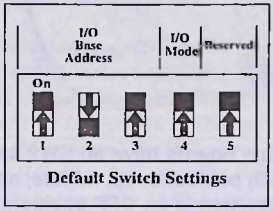
If you are going to run multiple TARGA+ boards, or you have another board that uses address 0x220, choose a different setting from the table shown and set the switches accordingly. (A recommended alternative setting is 0x230.)



Switches 1	2	3	BASE I/O ADDRESS
0	0	0	0x200
0	0	1	0x210
0	1	0	0x220
0	1	1	0x230
1	0	0	0x240
1	0	1	0x250
1	1	0	0x260
1	1	1	0x270

2. **Remember the base I/O address you set.** You will be asked to verify this address as part of the TARGA+ Setup Software installation.

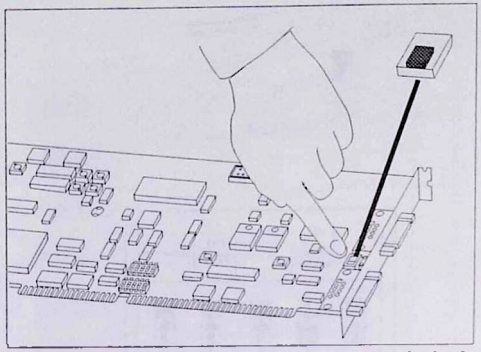




3. Switch setting 4 is the I/O mapping mode switch. **Typically, the switch should remain in the default (UP) position** - the 100% TARGA compatible mode - also known as non-contiguous I/O mapping. In this mode, the TARGA+ works like the original TARGA board and should work with all properly programmed original TARGA and TARGA+ software. Move switch 4 to the (DOWN) position only if the **TARGA+** software application **specifically states** it makes use of CONTIGUOUS I/O MAPPING.

4. Switch setting 5 is a reserved switch. Set it to the UP position.

STEP 5 - SET THE SW2 SWITCH



Caution: Some boards have an SW2 switch that actually has (3) positions: up, middle, and down. The middle position is an OFF position. Be sure you have this switch in either the UP or DOWN position. Otherwise, your board will not function.

The default position for switch SW2 is DOWN for H/V (horizontal and vertical sync output).

Move the switch setting to the (UP) position if you are going to connect any S-Video equipment to the output of the TARGA+. With the appropriate branching cable, multiple devices can be connected to the output of the TARGA+ such as an RGB monitor, a composite monitor, and an S-Video recorder. **If any one of the devices is S-Video, switch SW2 should be placed UP.**

S-Video equipment attached to the **input** connector of the TARGA+ is selectable through your software application.

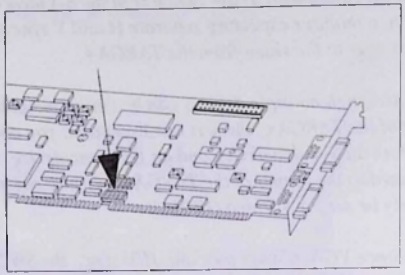
Notes regarding the TARGA+ switches:

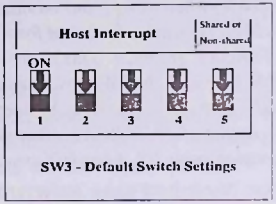
Note: Remember to change this switch when changing peripheral equipment. If the switch is in the S-Video(UP) position, a monitor expecting separate H and V sync signals will not sync to the video from the TARGA+.

Note: Although multiple devices can be connected to the output of the TARGA+, there is one exception: you cannot have both an S-Video device and an H/V sync device connected to the output of the TARGA+ because switch SW2 can only be set for S-Video OR H/V.

Note: Since VGA always puts out H/V sync, the SW2 switch must be set (DOWN) when using a one monitor configuration in which you will be switching back and forth between VGA graphics and TARGA+ graphics. This multi-scan monitor must accept H/V sync and the SW2 switch must be set (DOWN) for H/V sync. As a result, no S-Video devices can be attached to the output of the TARGA+ when using VGA pass through. Truevision cable CA-4 has H/V sync capability.

STEP 6 - SET THE SW3 SWITCHES



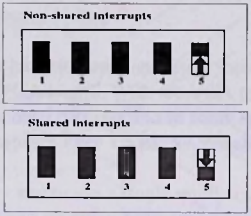


The SW3 switch settings control interrupts. (Interrupts are signals used by the TARGA+ to request attention from the host computer.) If you are going to run original TARGA software applications, switch settings 1-5 must be set in the default (DOWN) position.

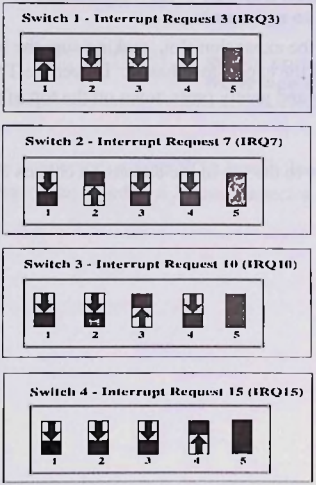
If you are running an application specifically designed for the TARGA+ which utilizes interrupts, **the software application should specify which interrupts it uses and what kind.**

Simply move switches 1-5 according to the instructions provided with your particular software application. (Examples are shown on the next page.)

If you are going to use original TARGA software or new TARGA+ software that does not use interrupts, then you can skip this step. (Your new TARGA+ software should specifically state that it uses interrupts.) If you are going to use new TARGA+ software that makes use of interrupts, then you need to set these switches.



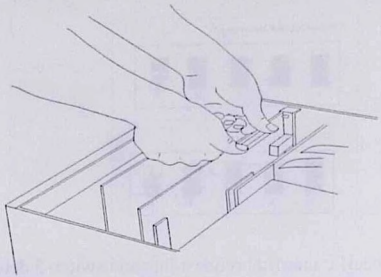
Switch settings 1-4 set the specific interrupt request line and switch 5 determines whether that request is shared or non-shared. (Shared means that more than one board can use the same interrupt.) **Leave switch 5 DOWN (shared) unless your software states otherwise.** Example: To set interrupt request 3 (IRQ3) as a shared interrupt, simply move switch 1 into the UP position and switch 5 into the down position.


Switch 1 - Interrupt Request 3 (IRQ3)
1 2 3 4 5
Switch 2 - Interrupt Request 7 (IRQ7)
1 2 3 4 5
Switch 3 - Interrupt Request 10 (IRQ10)
1 2 3 4 5
Switch 4 - Interrupt Request 15 (IRQ15)
1 2 3 4 5

Only one switch out of switches 1-4 can be in the UP position at any one time.

Switch setting 5 will be UP or DOWN depending upon whether the interrupt is shared or non-shared.

STEP 7 - INSERT TARGA+ INTO SLOT



1. Pick up the TARGA+ board with both hands and orient the board directly over the intended connectors in your computer's expansion slot area. (If available, use a 16-bit slot for better performance.)

2. Carefully lower the TARGA+ into the expansion slot, making sure the board slides into the plastic card guide at the front of the expansion chassis. Lower the TARGA+ until it just contacts the connector. Slowly and gently press down on the top of the board until it seats into place.

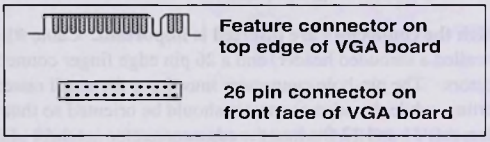
3. Anchor the bracket of the TARGA+ to the top of the expansion chassis using the slot cover screw left over from Step 2.

STEP 8 - CONNECT VGA BOARD TO TARGA+

If you have a VGA board, but it does not have a feature connector (an extra connector that allows you to attach the VGA to other graphics boards) - you will not be able to utilize the VGA pass through option. Proceed to Step 9.

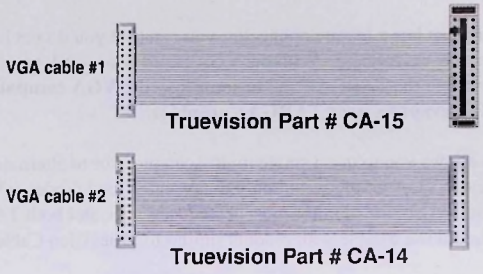
If you have a VGA board that has a feature connector, you can (but you do not have to) connect the TARGA+ to the VGA board. With the VGA board connected, you can pass the signal from the VGA board to the TARGA+ and **in some specific VGA compatible resolutions overlay VGA graphics over TARGA+ graphics.**

VGA pass through also allows you to use a single multi-scan monitor to alternate between using TARGA+ graphics or VGA graphics–but only in non-interlaced modes. (VGA Overlay is not recordable.) Also, the monitor must accept H/V sync and both TARGA+ and VGA scan rates. You should use a cable with pinouts similar to Truevision Cable CA-4.

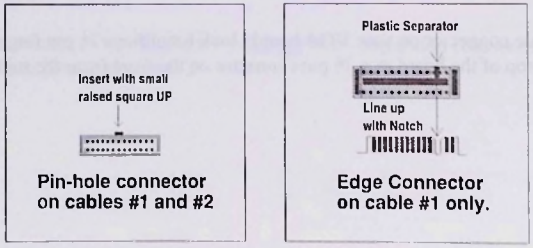


To find the feature connector on your VGA board, look for either a 26 pin finger edge connector at the top of the board or a 26 pin connector on the front (near the top) of the board.

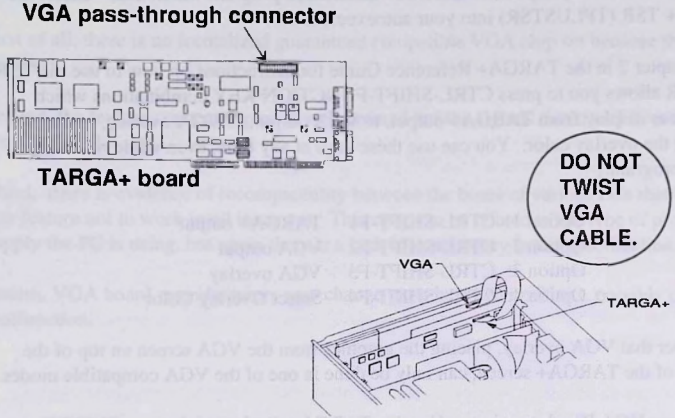
Two VGA connector cables are bundled with the TARGA+. (They are approximately 6" long ribbon cables.) Which cable you use depends upon the type of feature connector available on your VGA card. If you have a 26 pin edge finger connector, use cable #1, otherwise use cable #2.



The direction in which the connectors are inserted is important. Cable #1 has a 26 pin-hole connector (also called a shrouded header) and a 26 pin edge finger connector. Cable #2 has 2 pin-hole connectors. The pin-hole connectors must have the small raised square facing UP when inserting, while the edge connector should be oriented so that the plastic separator between elements 11 and 12 fits into the edge connector notch.


Insert with small raised square UP
Pin-hole connector on cables #1 and #2
Plastic Separator
Line up with Notch
Edge Connector on cable #1 only.

To connect cable #1, insert the 26 pin hole connector into the TARGA+ VGA pass through connector located in the upper right hand portion of the TARGA+. Then insert the edge connector onto your VGA board.



To connect cable #2, insert either connector into the TARGA+ VGA pass-through connector located in the upper right hand portion of the TARGA+ and insert the other end of the cable into the feature connector of the VGA.

NOTE: The feature connector on your particular VGA board may not be positioned in the specific area shown in the diagram. Where the feature connector is actually located depends upon the type of VGA board.

Important! Before utilizing VGA pass through, please read the following.

VGA pass through is not a complicated process if you remember to:

1. Answer YES to the option in the TARGA+ Installation program which asks "Insert the TARGA+ TSR (TPLUSTSR) into your autoexec.bat file?"

2. Read Chapter 2 in the TARGA+ Reference Guide for instructions on how to use the TSR. (The TSR allows you to press CTRL-SHIFT-FUNCTION KEY combinations which switch your display from TARGA+ output, to VGA output, to VGA overlay, and to selecting the overlay color. You can use these keys at any time, even while running another program.)

Option 1:	CTRL-SHIFT-F1	TARGA+ output
Option 2:	CTRL-SHIFT-F2	VGA output
Option 3:	CTRL-SHIFT-F3	VGA overlay
Option 4:	CTRL-SHIFT-F4	Select Overlay Color

3. Remember that VGA overlay, placing the graphics from the VGA screen on top of the graphics of the TARGA+ screen, can only be done in one of the VGA compatible modes.

If your VGA Resolution is:	Use this TARGA+ display mode	TMODE
320 x 200	512 x 400 or 640 x 400 VGA OVL	31,32, or 35
640 x 200	512 x 400 or 640 x 400 VGA OVL	31,32, or 35
640 x 400	512 x 400 or 640 x 400 VGA OVL	33,34, or 36
640 x 480	512 x 496 or 640 x 496 VGA OVL	33,34, or 36

The VGA signal and the TARGA+ signal have to be similar in order for them to properly coincide for the overlay process. That is, you must know the resolution of your VGA display in order to choose a compatible TARGA+ VGA overlay resolution.

If, after following all the appropriate procedures, VGA pass through still does not function, it is likely you may not have a compatible VGA board. **Truevision will make every effort to help you identify a potential problem–please call us.**

Following are several issues that make VGA pass through a complicated issue.

First of all, there is no formalized guaranteed compatible VGA chip set because there is no standard.

Second, the feature connector plug is well defined but the signals that travel over this bus are undefined.

Third, there is evidence of incompatibility between the buses of various PCs that cause this feature not to work in all instances. This seems to be related to the type of power supply the PC is using, but again there is a lack of consistency in the specifications.

Fourth, VGA board manufacturers may change parts between revisions, possibly causing a malfunction.

STEP 9 - REPLACE COVER AND CHECK CABLES

Check your computer owner's manual for instructions on how to replace the cover on your particular computer.

You are now ready to connect your monitor, camera, VCR, or other equipment to the TARGA+ board. For this you will need two cables, one for Video IN and one for Video OUT. Your dealer should have advised you which cables were "appropriate" for your particular application.

By "appropriate" cable, we mean a shielded cable specifically designed to connect the TARGA+ to video equipment such as monitors, cameras, or VCRs.

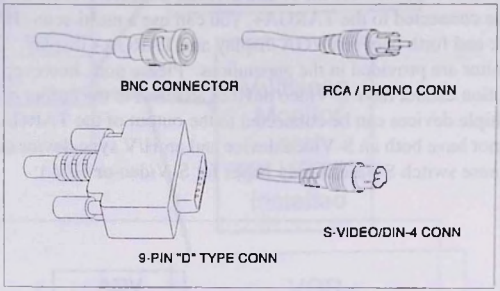
If you do not have cables that fit your configuration, either check with your dealer or go to the Appendix titled "Cables" for further information.

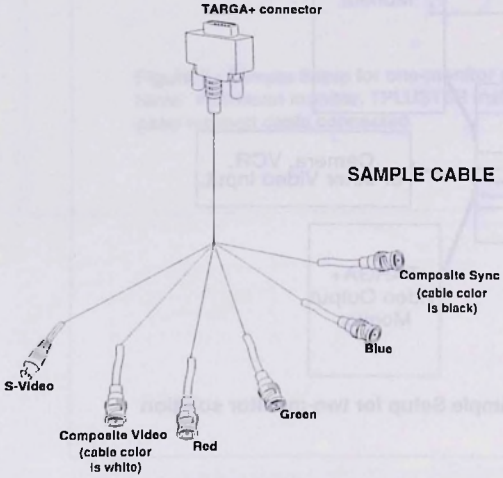
Also, check the owner's manuals for your video equipment and review the sections on "Video IN" and "Video OUT" connectors.

If you need a custom cable for your particular hardware configuration, we suggest you call CABLES TO GO at 1-800-826-7904. (Be sure to have your pin specs available when you call.)

STEP 10 - REVIEW TYPES OF CONNECTORS

The diagram below illustrates the various types of connectors generally found on video cables. Your cables should have a 9-pin D type male connector on one end (for the TARGA+ input and output) and some other connector combination at the other end.





STEP 11 - CONNECT YOUR MONITOR

There are a couple of ways to connect a monitor to the TARGA+. The first is called the two-monitor-solution (figure 1) in which you have your VGA card connected to your VGA monitor, and you connect the TARGA+ to another monitor. This is the recommended method of operation.

The other alternative is the single-monitor-solution (figure 2). With the VGA pass-through cable connected to the TARGA+, you can use a multi-scan (H/V sync) monitor to switch back and forth between VGA display and TARGA+ display. Guidelines for using a single monitor are provided in the appendices. Please note, however, that the single-monitor-solution cannot have S-Video devices attached to the output of the TARGA+. (Although multiple devices can be connected to the output of the TARGA+, there is one exception: you cannot have both an S-Video device and an H/V sync device connected at the same time because switch SW2 can only be set for S-Video **or** H/V.)

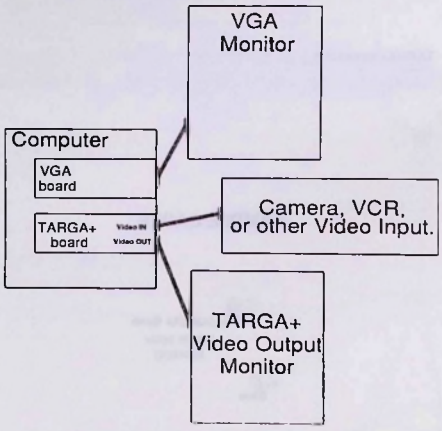


Figure 1: Sample Setup for two-monitor solution

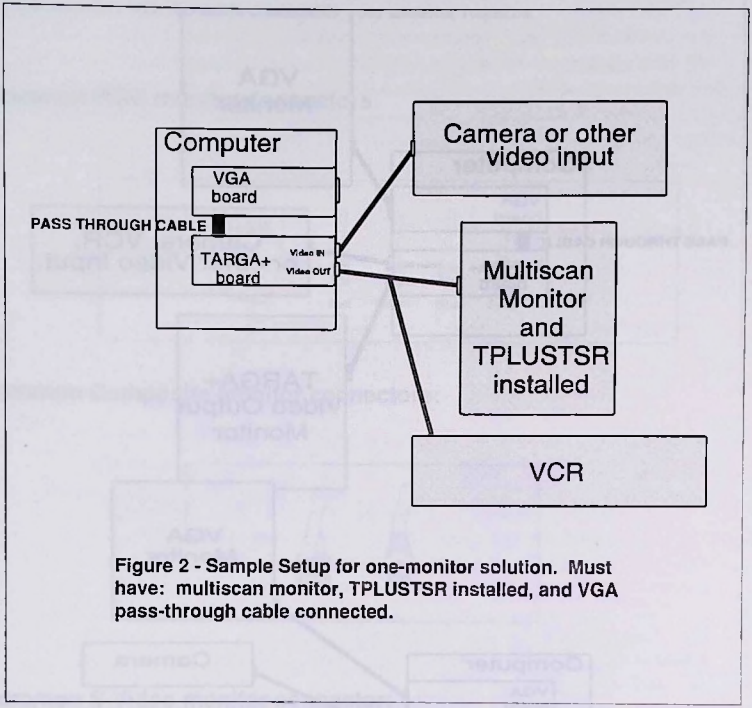


Figure 2 - Sample Setup for one-monitor solution. Must have: multiscan monitor, TPLUSTSR installed, and VGA pass-through cable connected.

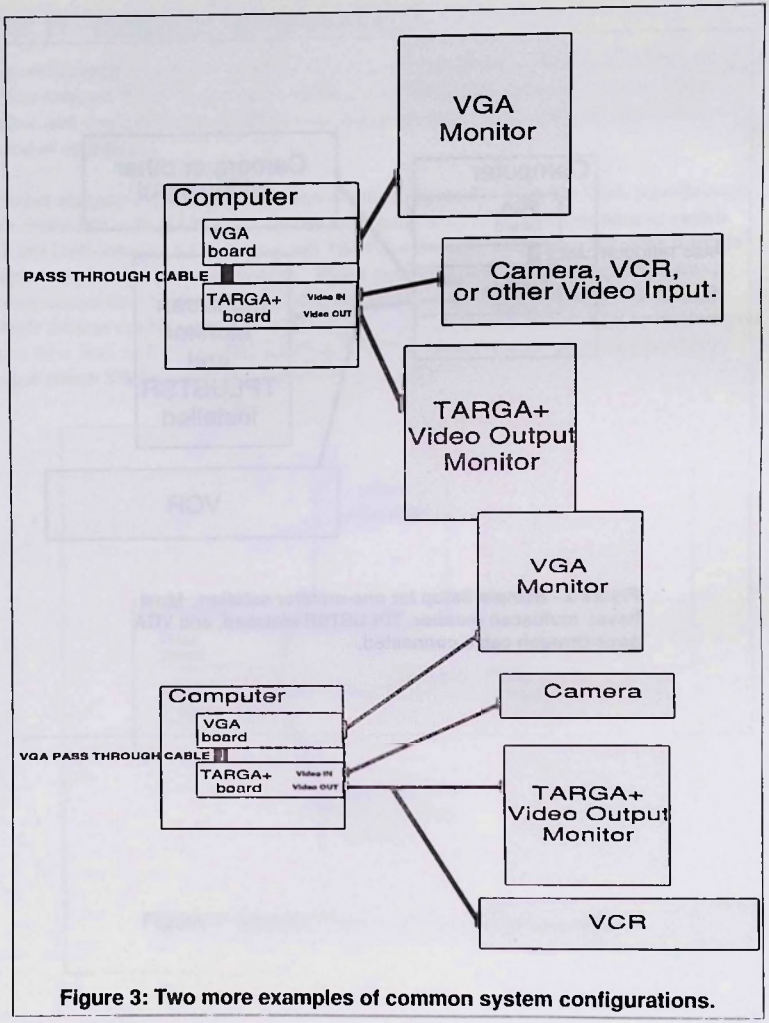
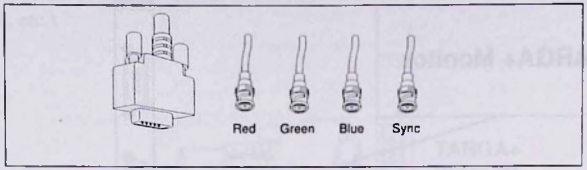


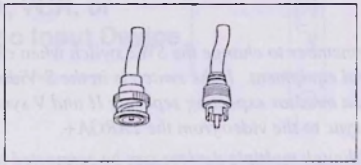
Figure 3: Two more examples of common system configurations.

Since different monitors have different connections, you will have to match the connectors on your monitor with the cable connectors your monitor requires.

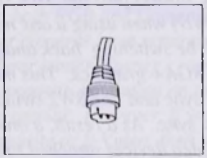
Common RGB monitor connectors:



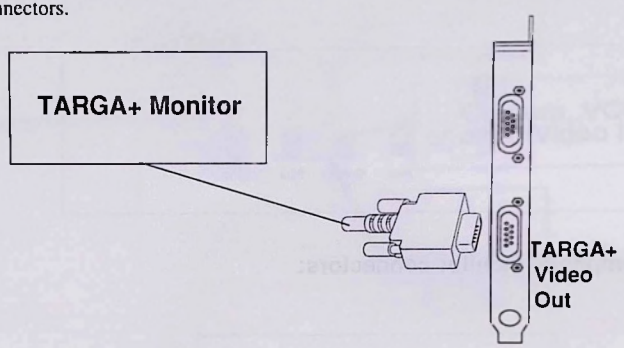
Common Composite monitor connectors:



Common S-Video monitor connector:



The connector that plugs into the TARGA+ board is always a "D" type 9-pin connector. To connect the TARGA+ to your monitor, insert the 9-pin D male type connector end of your cable into the Video OUT (bottom connector) of the TARGA+. The other end of the cable will have whatever connectors are appropriate for the monitor. To hook up your particular monitor, check the owner's manual for your monitor. Find the section that describes the various VIDEO INPUT connections available and plug in the appropriate connectors.



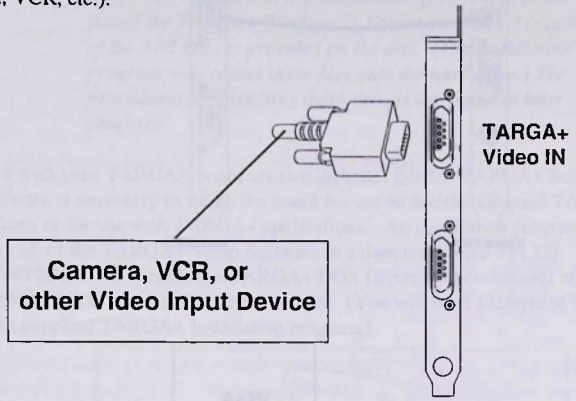
Note: Remember to change the SW2 switch when changing peripheral equipment. If the switch is in the S-Video(UP) position, a monitor expecting separate H and V sync signals will not sync to the video from the TARGA+.

Note: Although multiple devices can be connected to the output of the TARGA+, there is one exception: you cannot have both an S-Video device and an H/V sync device connected to the output of the TARGA+ because switch SW2 can only be set for S-Video OR H/V.

Note: Since VGA always puts out H/V sync, the SW2 switch must be set (DOWN) when using a one monitor configuration in which you will be switching back and forth between VGA graphics and TARGA+ graphics. This multi-scan monitor must accept H/V sync and the SW2 switch must be set (DOWN) for H/V sync. As a result, a one-monitor-solution cannot have S-Video devices attached to the output of the TARGA+.

STEP 12 - CONNECT YOUR VIDEO SOURCE

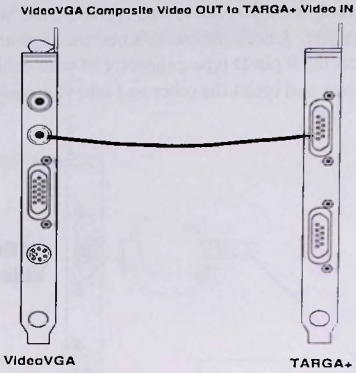
Like the monitor cable, the connections for the video source end of the Video IN cable depend on the type of video equipment you have, and can therefore be one or a combination of the connectors described earlier. Check the owner's manual of your video source for the appropriate connections. Insert the 9 pin D type connector of your cable into the Video IN (top connector) of the TARGA+ and insert the other end into your video source input (camera, VCR, etc.).

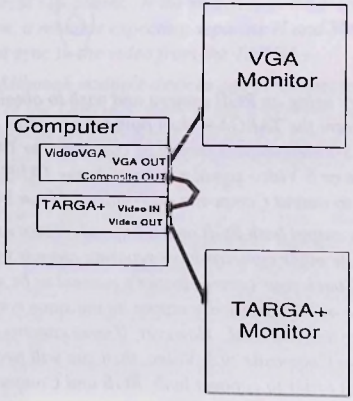


Note: If you are using an RGB camera and wish to obtain Composite or S-Video output from the TARGA+, then both the camera's RGB as well as its Composite or S-Video outputs should be connected to TARGA+ Video In. The Composite or S-Video signal will provide the TARGA+ the proper signal needed to output Composite or S-Video with an RGB input.

Some cameras output both RGB and Composite Video on the same connector, while other cameras have separate outputs for RGB, Composite or S-Video. (Check your camera owner's manual to be sure.) If both RGB and Composite or Composite are output on the same connector, then you need not do anything special. However, if your camera outputs RGB separately from Composite or S-Video, then you will need a branching cable (CA-6) in order to connect both RGB and Composite to the TARGA+.

If you are using the Truevision VideoVGA™ board, you can take the composite video from the VideoVGA board and use it as the video input for the TARGA+. See diagrams below:





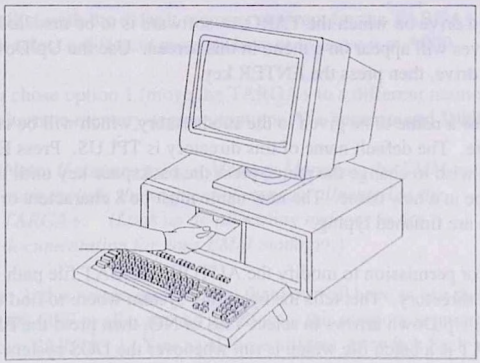
STEP 13 - INSTALLING THE TARGA+ SETUP SOFTWARE

You have completed the TARGA+ hardware installation. Turn your computer ON.

You will now install the TARGA+ Setup Software onto your hard disk. This software is necessary for running new TARGA+ application software, original TARGA application software, or a combination of old and new application software.

> *Note: The TARGA+ SetUp Installation program does not install the TARGA+ Windows™ Driver, nor does it install any of the ADI drivers provided on the disk. (The installation program only copies these files onto the hard drive.) The procedures for installing these drivers are found in later chapters.*

Enclosed with your TARGA+ board are two diskettes labeled TARGA+ Setup Software. This software is necessary to set up the board for use with either original TARGA applications or for use with TARGA+ applications. An installation program is provided that will copy all of the TARGA+ Setup Software to a directory called TPLUS. It will also edit your CONFIG.SYS to include the TARGA+ DOS Driver, add commands of your choice to AUTOEXEC.BAT, and install various utilities. (You will need 1MByte of hard disk space to run the supplied TARGA+ Installation program.)



Follow these steps to install the TARGA+ Setup software:

STEP A

Insert the TARGA+ Setup Software Diskette Number 1 into your diskette drive and change your DOS prompt to the appropriate diskette drive letter such as A: or B:

STEP B

At the DOS prompt, type the word **install** and press the ENTER key. The first page of the installation program appears on your screen. Simply follow the directions on each screen. All screens will have a default value indicated. If you are in doubt, accept this value.

Screen 1 - Presents instructions for getting through the installation. Press any key to proceed or Esc to quit.

Screen 2 - Displays your current system configuration. Press any key to proceed or Esc to quit.

Screen 3 - Determines if your system is suitable for TARGA+ installation. If you should receive a message that your system configuration is not suitable for TARGA+ installation. check to see that your system meets the minimum requirements stated at the beginning of this manual. Press any key to proceed.

Screen 4 - Select a drive on which the TARGA+ software is to be installed. All your available hard drives will appear on a menu in this screen. Use the Up/Down arrows to select the desired drive, then press the ENTER key.

Screen 5 - Asks for a name to be given to the subdirectory which will be created for the TARGA+ software. The default name of this directory is TPLUS. Press ENTER to accept this name. If you wish to change the name, press the backspace key until the default name is removed, then type in a new name. The new name must be 8 characters or less. Press ENTER after you are finished typing.

Screen 6 - Asks for permission to modify the AUTOEXEC.BAT file path variable to include the newly created directory. This tells the operating system where to find the TARGA+ software. Use the Up/Down arrows to select YES or NO, then press the ENTER key. (AUTOEXEC.BAT is a batch file which is run whenever the DOS system is started or rebooted. AUTOEXEC.BAT makes operating your computer more efficient by automatically loading programs and routines which are needed by your applications or hardware.)

Screen 7 - Asks for permission to modify the AUTOEXEC.BAT file by adding the command line TPLUSTSR to the end of the file. This will cause the TARGA+ Terminate Stay Resident (TSR) Program (TPLUSTSR) to load upon system start-up. The TPLUSTSR utility allows you to toggle your display back and forth between VGA and TARGA+ and can be used for VGA Overlay. If you are using a single monitor system, you must choose YES. (Information on TPLUSTSR is found in Chapter 2 of the TARGA+ Reference guide.) Use the Up/Down arrows to select YES or NO, then press the ENTER key.

Screen 8 - Asks for permission to add a command to your AUTOEXEC.BAT file which will put your system in a default TARGA+ mode upon bootup. Use the Up/Down arrows to select YES or NO, then press the ENTER key.

Screen 9 - If you answered YES to screen 8, this screen offers seven default display modes in which to run the TARGA+. The first three modes emulate the original TARGA 16, 24, and 32, while the last four modes are basic configurations for NTSC and PAL. (You can always alter these modes through the TARGA+ configuration program - TConfig.)

Screen 10 - Asks if you want the utility VGA_INI run each time you boot. If you are using a single monitor configuration, select YES. If you are using multiple monitors, select NO. Then press the ENTER key.

Screen 11 - If your system has a VGA or EGA card, the memory segment (A000) for this card will be in conflict with the default memory segment for the TARGA+ (A000). You are given the option to select a different memory base or to leave it at A000.

Screen 12 - If you chose option 1 (move the TARGA+ to a different memory segment), this screen gives you alternate memory segment options. **We recommend D000.**

> ***Note:*** *If you are using a Memory Manager, the EMM manager must exclude the segment of memory allocated to the TARGA+. (Look up de-allocating memory in the documentation for your EMM manager.)*

If you chose option 2, this screen reminds you that you will have to use the two utilities (A000-ON and A000-OFF to allocate and de-allocate this memory segment when using your VGA board vs. your TARGA+.) You need these utilities to switch back and forth between the VGA/EGA and your TARGA+ since they are using the same memory segment. You must turn ON segment A000 to see your VGA display output and turn OFF segment A000 to see your TARGA+ display output.

When you are ready to run a TARGA+ application, simply type A000-OFF at the DOS prompt. When you are finished with the TARGA+ application, type A000-ON at the DOS prompt.

Screen 13 - Asks for permission to edit your CONFIG.SYS file to install the TARGA+ DOS Driver. (This driver must be installed to run any TARGA+ software application.) If you like, you can edit your CONFIG.SYS file manually as described in Appendix I of the TARGA+ Reference Guide. Use the Up/Down arrows to select YES or NO, then press the ENTER key.

Screen 14 - Requests that you select the I/O Base address for the TARGA+. This address must match the switch setting you chose for the SW1 switch on your TARGA+ board - see page 14 of this manual. Use the Up/Down arrows to select one of the addresses, then press the ENTER key.

Screen 15 - Asks if you want VGA pass through connected. In other words, do you want the output signal of the VGA passed to the TARGA+? If you are using a single monitor system configuration, you must select YES. (The feature connector of your VGA card needs to be attached to the feature connector of the TARGA+ with the ribbon cable.) Use the Up/Down arrows to select YES or NO, then press the ENTER key.

Screen 16 - Displays the status of the software installation as it is being performed. This procedure will take a few minutes.

Screen 17 - Asks you to take the TARGA+ Setup Software Diskette Number 1 out of the drive, and insert the TARGA+ Setup Software Diskette Number 2. Press any key to continue.

Screen 18 - Describes whether or not your AUTOEXEC.BAT file has been edited. If it has been updated, the commands that have been added are shown. Press any key to continue.

Screen 19 - Describes whether or not your CONFIG.SYS file has been edited. If it has been updated, this screen displays the commands that were inserted. Press any key to continue.

Screen 20 - Prompts you to take out the TARGA+ Setup Software Diskette Number 2 and Insert Diskette Number 1. Press any key to continue.

Screen 21 - This is the final screen of the installation and describes the results of the installation. When you press any key, you will be at the DOS prompt for the TARGA+ Setup Software directory.

STEP C

Having completed the installation, remove the TARGA+ Setup Software Diskette from your diskette drive and store it in a safe place.

Then reboot your computer.

After installing the TARGA+ Setup Software, you must reboot your PC to make the changes effective. If you get the message

"Notice: TARGA+ Switcher is already loaded!"

then the interrupt vector location which the TPLUSTSR is trying to use is not available. You should do the following to correct the problem: Edit your AUTOEXEC.BAT and insert the following command *before* the line that reads - TPLUSTSR.

set tplustsr=66

This should allow the TARGA+ TSR to load to a different interrupt vector location - thereby eliminating the error message. If this does not work, simply try another interrupt vector number between 60 and 67.

RUNNING THE DEMO

Have you rebooted your system to initialize all the Setup Software?

Use the **cd** command to change to the directory (TPLUS) which contains the TARGA+ Setup Software and at the DOS prompt, type **tdemo** and press the RETURN key.

Then follow the instructions on the screen. You will be asked a number of questions regarding the type of system you have and what type of devices you have connected. For example, if you answer that you do not have a video source connected, you will not see the overlay and video features of the TARGA+.

When the demo is finished, go to the next chapter to read how to use the configuration program, TConfig. (Remember, your application software will not run without setting up a display mode.)

Chapter 2 - Setup for TARGA or TARGA+ Applications

TARGA+ CONFIGURATION PROGRAM

Before you can run your classic TARGA or TARGA+ software application, you must set up the board to run your particular application. This is done through the TARGA+ configuration program known as TConfig. With this single program you can put your TARGA+ into any of its many operating modes. In addition, you can save any of the modes you create using any names you wish and then invoke these modes simply by typing their names at the DOS prompt.

The easiest way to use TConfig is simply to type 'TConfig' at the DOS command line prompt.

Mouse Operation

To use the mouse to run TConfig, simply click on the controls you see to select among the various options. Some buttons pull up 'list boxes' which provide a number of options. Double click on the option you want and it will be selected.

Keyboard Operation

To use the keyboard, press the <Tab> key to get to the selection, then use the arrow keys to make the selection. Press <Enter> to activate the selection. (Note: Num Lock must be OFF for arrow keys to function.) To go backwards, press the <Shift> and <Tab> keys at the same time. To get a menu to pull down use the <Alt> key together with the letter highlighted in the menu's name.

Slider Operation

To operate the tuning sliders, simply click and hold the slider button while you move it left or right. Or, click on the highlighted name of the slider. A dialog box appears that prompts you to enter a value from the keyboard. Enter the value and press the <Return> key.

How do I get the board to respond?

In default operation, the TARGA+ doesn't react while you adjust the controls. If you want to see the effect of a control change, you can either select 'Do Mode' from the Special menu, (which sets the TARGA+ in the current mode) or you can select 'Interactive' from the Special menu, to have the board continuously updated to reflect the current control settings. To adjust the 'tuning' controls it is best to have a live signal connected to the TARGA+ and select 'Go Live' from the 'Special' menu. This option automatically puts you in the 'Interactive'mode.

You can place the board in a "classic" TARGA mode through the 'Do Mode' and 'Interactive' commands. However, this does not set the TARGA environment variables necessary to run original TARGA software. Once you create a classic TARGA mode, be sure to SAVE it as a batch file with the SAVE command in the FILE menu. Then, when you are ready to run your program, type the name of this .BAT file at the DOS prompt.

What if I only have a single monitor?

If you are working in a single-monitor environment, then you must have the VGA pass-through connector connected between the TARGA+ and your VGA card. **Remember the ALT-V key combination** to switch between viewing the TARGA+ and your VGA output. You can also switch from VGA output to TARGA+ by using the 'VGA Pass-Through Override' selection from the 'Special' menu in the TCONFIG program.

Invalid Options

Some options may not be valid under certain circumstances. If this is the case the option will either be removed, or a message will appear indicating why that option can't be selected (e.g., selecting non-interlaced NTSC video while genlock is on).

What has to be set up to run TARGA+ applications?

To run TARGA+ applications on the TARGA+ board, use the TCONFIG utility to create and save an appropriate batch file. Run this batch file prior to using your application. Or, if you always use a particular configuration, edit your AUTOEXEC.BAT file and insert the batch file name. The TARGA+ will be automatically placed into the appropriate mode upon start-up.

What has to be set up to run classic TARGA applications?

To run classic TARGA applications on the TARGA+ board, use the TCONFIG utility to create and save an appropriate batch file which must be run prior to using your classic TARGA application.

For example, following is the procedure for running a TARGA 16 application:

1. Run the TCONFIG utility.

2. On the main screen is an item marked "Operation Mode." Select TARGA 16. This should change the pixel depth in TCONFIG to 16-bits per pixel.

3. Then, choose a resolution, video input type, or any other option.

4. Go to the FILE menu to exit. When the screen prompts you to "save the setting," respond with a "YES." A screen appears which prompts you to type the name of the batch file you want to save. You can choose any name you like. In this example, type TARGA16.

5. After exiting TCONFIG, type TARGA16 at the DOS prompt.

   You should now be in a TARGA 16 compatible mode and be able to run your application. If you just run TCONFIG and set the TARGA mode, the mode is not active when you exit TCONFIG because TCONFIG is a TARGA+ application.

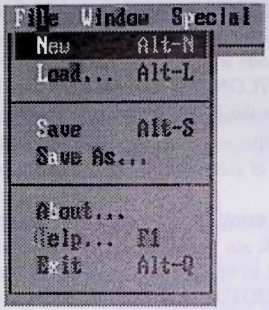
   (You cannot set a TARGA mode while in a TARGA+ application.) Therefore, the batch file must be run after exiting TCONFIG. You can also place the batch file into your AUTOEXEC.BAT file so that the TARGA+ is automatically placed into the appropriate compatible mode upon start-up.

THE TCONFIG MENUS

The configuration program has three pull-down menus: the File Menu, the Window Menu, and the Special Menu. Notice that the menu items also list keyboard key sequences that are shortcuts for accessing the menu items.

The File Menu

The file menu has all the commands for loading and saving files, getting help and exiting TConfig.



New (File Menu)

This sets all the controls in TConfig to their default state and allows you to create a new batch file. This is the appropriate selection if you want to start a new mode 'from scratch.' If you have made changes to the previous mode you will have an opportunity to save that mode before resetting all the default values.

Load (File Menu)

This option allows you to load a previously created mode file.

Save (File Menu)

This saves the current mode definition in the currently active file into the current directory. The currently active file is the one most recently 'Loaded' or 'Saved'. If you save your files to a directory other than TPLUS, be sure to add the new directory to your PATH command.

Save As (File Menu)
This saves the current configuration in a file name which you will be prompted to supply.

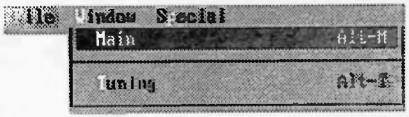
About (File Menu)
Brings up a dialog box specifying the TConfig version number and offering 'Help'.

Help (File Menu)
Offers help information.

Exit (File Menu)
Quits TConfig. (If you have any unsaved changes, you will have an opportunity to save them).

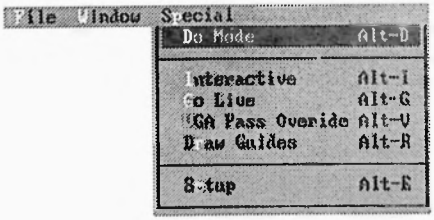
The Window Menu

From the window menu you can select the Main window, or the Tuning window. These windows contain buttons and fields which define the current mode.



The Special Menu

This menu provides several options that allow more flexible interaction with the program.



Do Mode (Special Menu)

Do Mode implements the mode that is currently defined by the controls in the main window and the tuning window. **Note: For a "classic" TARGA mode, you have to save the mode and actually run the batch file before you can run the TARGA software.**

Interactive (Special Menu)

Interactive is a toggle switch which, when enabled (checked), continuously updates the TARGA+ with the current state of the controls.

Go Live (Special Menu)

Go Live puts the board in live mode to allow you to see the effects of adjusting the controls on the tuning window.

VGA Pass Override (Special Menu)

VGA Pass Override is for use in single-monitor situations where the VGA monitor must be visible at all times. When VGA Pass Override is enabled the board is set for VGA pass through independent of the setting of any TConfig controls. Remember the ALT-V key combination to switch between viewing the TARGA+ and your VGA output.

Draw Guides (Special Menu)

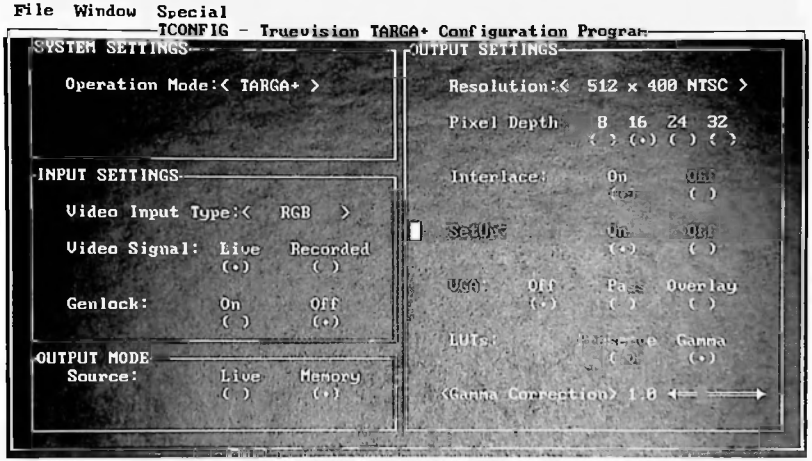
Draw Guides draws some centering guides into the TARGA+ frame buffer, to better aid you in using the vertical and horizontal centering controls in the tuning window. These guides are only visible when video is OFF.

Setup (Special Menu)

Setup brings up a hardware configuration screen that allows you to change your base IO address, base memory address, data transfer size, and the number of read, write and i/o wait states. The controls on this page ultimately result in changes in your CONFIG.SYS file, and require a re-boot of your system for the changes to take effect. Data bus transfer size is also on this page even though it doesn't require a re-boot to take effect.

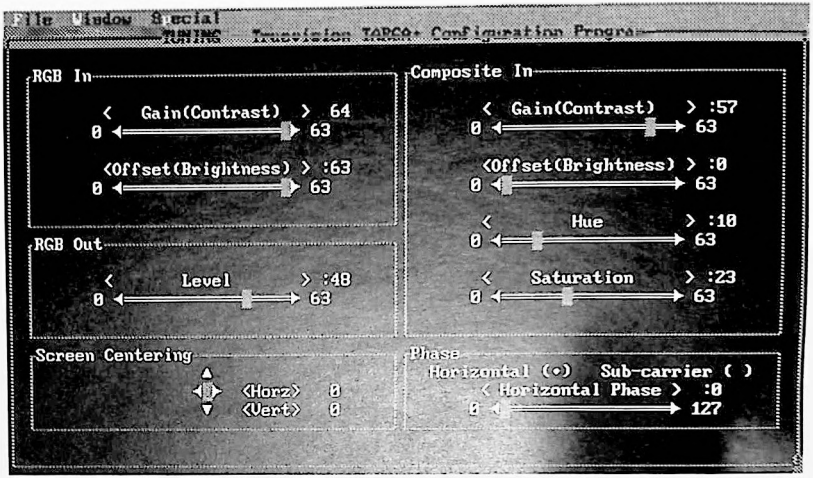
THE THREE TCONFIG SCREENS

There are actually three screens that can be accessed: the Main Screen, the Tuning Screen, and the Hardware Setup screen.

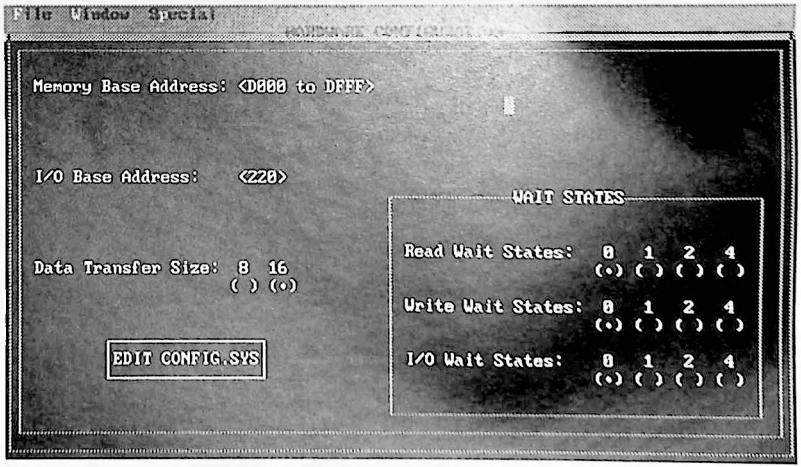


Main Screen

Tuning Screen



Hardware Setup Screen


File Window Special
Memory Base Address: <D000 to DFFF>
I/O Base Address: <220>
Data Transfer Size: 8 16
( ) (•)
EDIT CONFIG.SYS
WAIT STATES
Read Wait States: 0 1 2 4
(•) ( ) ( ) ( )
Write Wait States: 0 1 2 4
(•) ( ) ( ) ( )
I/O Wait States: 0 1 2 4
(•) ( ) ( ) ( )

THE MAIN SCREEN

Operation Mode

The default setting for this mode is TARGA+. The other options are TARGA8, TARGA16, TARGA24, and TARGA32.

Board Number

If you have only one TARGA+ in your computer, this option will not appear. If you have more than one board, board numbers do appear. Board numbers start with 0.

Video Input Type

The default video input is RGB. The other options are None, Composite, S-Video, and Special.

Video Signal

Choices are Live and Recorded. An example of a Live signal is one from a camera, while an example of a recorded signal is one from a VCR. (A recorded signal is not necessarily as clean as a live signal and is sampled more often.)

Genlock

When Genlock is OFF, the TARGA+ synchronizes (or locks) to the signal of the external video device. When Genlock is ON, the external video device must lock or synchronize to the TARGA+.

Resolution

The TARGA+ is capable of numerous resolutions. The types of resolutions available to you depend upon the operating mode you have chosen and upon the type of board you have. For example, if you have chosen TARGA24, only the resolutions that were available on the original TARGA24 are available. If you have chosen a TARGA+ 64, then all resolutions are available to you.

Among the resolution options are resolutions described as 'VGA OVL compatible.' If you want to enable VGA overlay, you must select one of these resolutions.

Important! *Please remember that VGA overlay, placing the graphics from the VGA screen on top of the graphics of the TARGA+ screen, can only be done in one of the VGA compatible modes. The VGA vertical scan rate signal and the TARGA+ vertical scan rate signal have to be similar in order for them to properly coincide for the overlay process. That is, you must know the resolution of your VGA display in order to choose a compatible TARGA+ VGA overlay resolution.*

A VGA resolution of 320 x 200, 640 x 200, or 640 x 400 has a vertical scan rate of 70 Hz. A VGA resolution of 640 x 480 has a vertical scan rate of 60 Hz. The TARGA+ VGA Overlay resolutions of 512 x 400 and 640 x 400 have a vertical scan rate of 70 Hz, while the 512 x 496 and 640 x 496 resolutions have a vertical scan rate of 60Hz.

VGA Overlay only works in non-interlaced mode.

If your VGA Resolution is:	Use this TARGA+ display mode	TMODE
320 x 200	512 x 400 or 640 x 400 VGA OVL	31,32, or 35
640 x 200	512 x 400 or 640 x 400 VGA OVL	31,32, or 35
640 x 400	512 x 400 or 640 x 400 VGA OVL	33,34, or 36
640 x 480	512 x 496 or 640 x 496 VGA OVL	33,34, or 36

Pixel Depth

Pixel depth refers to the bits per pixel used to store your image information. Available choices are 8, 16, 24, and 32 bits per pixel. If you choose a pixel depth that is not available in the currently chosen operation mode, you will get an error message. Also, check with your software application to see what pixel depth the software requires. For example, TIPS and TypeRight for the TARGA+ only run in 16 or 32-bits per pixel mode.

Interlace

Interlacing describes the type of screen refreshing that takes place on your monitor. Whenever you will be working with live video, Interlace must be ON. If you are not using live video, Interlace can be OFF.

Setup

Setup allows you to adjust the black level of the video from 0 to 7.5 ire. In addition, the peak white level is adjusted up or down by the same amount; therefore the overall brightness of the image will appear to follow this setup.

The SETUP bit toggles between OFF (0 ire) to ON (7.5 ire). When an NTSC resolution is chosen, the system automatically sets this bit to ON (7.5 ire); when a PAL mode is chosen the value is automatically set to OFF (0 ire). If you wish to override the standard setting, simply click on the appropriate setting.

VGA

This parameter only works if your VGA board and TARGA+ board are connected through their respective feature connectors. Also, Overlay can only be selected when an appropriate VGA Compatible Overlay mode is chosen.

When OFF is selected, there is no interaction between your VGA card and the TARGA+.

When PASS is selected, VGA pass-through is enabled. This means that what you see on the VGA monitor is passed to the TARGA+ monitor. If you are using only a single (multiscan) monitor, this feature allows you to switch back and forth between VGA and TARGA+ graphics.

LUTS

If you want to preserve the look up tables, click on the PRESERVE setting. If you want to change the look up tables, click on the GAMMA setting. The Gamma Correction slider appears and lets you recolor your image. (Gamma Correction is a means of correcting for non-linear output & input devices such as printers and cameras and also allows for human visual preferences.)

THE TUNING SCREEN

The Tuning Screen contains all the controls for adjusting the video coming in and out of the TARGA+. It is best used with a video source attached so that you can see the immediate results.

The five types of tuning available are RGB In, RGB Out, Screen Centering, Composite In, and Sub-carrier Phase. To set the tuning sliders, simply click and hold the slider button while moving it left or right. Or, click on the highlighted name of the slider and a dialog box appears in which you can enter a value from the keyboard, then press the <Return> key.

RGB In

Allows you to set both the contrast and the brightness of an incoming RGB signal (such as the signal from an RGB camera).

RGB Out

Allows you to set the level of RGB going out of the TARGA+ to your monitor or VCR.

Screen Centering

(You must be in Interactive Mode to see the results of screen centering.) To center the image on your screen, click on the appropriate directional arrows. You will see the values for Horz and Vert either increment or decrement and you should see your image move on your screen. When the values no longer increment or decrement or when your monitor display becomes skewed, you have reached the limit for your monitor.

Composite In

Four sliders are available for tuning Contrast, Brightness, Hue, and Saturation. Adjust them by using the slider bar or by clicking the highlighted title and input a value from the keyboard.

Phase: Horizontal and Sub-carrier

Most end-users can disregard this setting. These are highly technical adjustments requiring the use of an oscilloscope. For those who need to make an adjustment - simply click on the appropriate setting (horizontal or sub-carrier), then manipulate the slider bar that appears. Horizontal phase is also known as h-phase.

THE HARDWARE SETUP SCREEN

This screen allows you to alter the hardware configuration of the TARGA+ and lets you edit the TARGA+ DOS Driver to match the configuration. When you make a change to any of the options on this screen other than Data Transfer Size, be sure to click on the EDIT CONFIG.SYS box to actually change the TARGA+ DOS Driver entry in the CONFIG.SYS file. **Then reboot your computer to make the changes take effect.**

Memory Base Address

This sets the memory segment address for the current board. The default value is A000. (We recommend you use memory base address D000.) It is possible to have multiple boards share the same segment memory, but all software may not support this feature. We recommend you use D000. If you need to use memory segment A000, you may have to run the utilities A000-ON and A000-OFF to avoid conflict with your VGA card.

I/O Base Address

This determines the I/O base address of the TARGA+ and must be unique for each board in your system. The default value is 220. If you change this address, you must physically change the first three dip switches on Switch SW1 of the TARGA+ board to match the chosen address. (See Chapter 1.)

Data Transfer Size

Some computers (most notably the IBM PS/2 Model 30) do not wait long enough for the TARGA+ board to acknowledge whether it is an 8-bit or 16-bit board. If you have one of these computers, select the 8-bit option. (You do not need to edit CONFIG.SYS in order for this option to take effect.)

Wait States

This parameter sets the number of wait states the computer's processor must insert during memory, write and I/O operations. The default wait state is 1. Unless your display images have missing pixels, mouse trails, or otherwise look distorted, you should NOT set these parameters.

This page intentionally left blank.

Chapter 3 - Setup for VGA Pass Through

In order to use just a single monitor and switch back and forth between VGA graphics and TARGA+ graphics, you must have your system and software set up as follows:

A. Your VGA board and TARGA+ board are connected with the VGA pass through cable.

B. Your **multiscan** monitor is attached to the TARGA+ Video Out connector. We recommend a multiscan monitor with a horizontal scan range from 15 KHz to 35KHz.

C. All of the TARGA+ Setup Software has been copied to your hard disk.

D. The TARGA+ DOS Driver is installed with a display mode of **d4** for VGA pass through.

E. The TPLUSTSR is installed.

To start your application, do the following:

1. Use the configuration program TConfig to set the TARGA+ into a VGA overlay display mode such as:

If your VGA Resolution is:	Use this TARGA+ display mode	TMODE
320 x 200	512 x 400 or 640 x 400 VGA OVL	31,32, or 35
640 x 200	512 x 400 or 640 x 400 VGA OVL	31,32, or 35
640 x 400	512 x 400 or 640 x 400 VGA OVL	33,34, or 36
640 x 480	512 x 496 or 640 x 496 VGA OVL	33,34, or 36

2. Start your application.

3. Press the TPLUSTSR key sequence (default key sequence = CTRL-SHIFT-F1) combination to change your display to TARGA+.

   The application should appear on your screen.

4. When you are finished, exit the application.

5. Press the TPLUSTSR key sequence (CTRL-SHIFT-F2) combination to change back to VGA display.

TPLUSTSR

To utilize VGA pass through, you need to be able to switch back and forth between VGA graphics, TARGA+ graphics, and VGA overlay. The way you do this is through TPLUSTSR or the utility PLUSMODE.

TPLUSTSR is a TSR (Terminate Stay Resident) utility. This means it becomes active whenever your computer is powered-up, and is available for use even from within other applications. TPLUSTSR allows you to use a combination of keyboard keys to switch from TARGA+ graphics to VGA graphics to VGA Overlay or to Select the Overlay Color. Install this utility only if you intend to use the TARGA+ in conjunction with a VGA board for switching back and forth between TARGA+ graphics and VGA graphics.

Note: TARGAP.SYS (the TARGA+ DOS driver) must be installed in order to use this program.

Step 1:

(If you used the TARGA+ Installation program, this step can be skipped.) Add the name of the drive and directory where the TARGA+ Setup Software files are located to the PATH line in AUTOEXEC.BAT. Then also add the following line to AUTOEXEC.BAT:

tplustsr

Step 2:

Once you have rebooted, pressing the CTRL-SHIFT-FUNCTION KEY combinations will allow you to switch from TARGA+ output, to VGA output, to VGA overlay, and to selecting the overlay color. You can use these keys at any time, even while running another program.

Option 1: CTRL-SHIFT-F1	TARGA+ output
Option 2: CTRL-SHIFT-F2	VGA output
Option 3: CTRL-SHIFT-F3	VGA overlay
Option 4: CTRL-SHIFT-F4	Select Overlay Color

Changing the default keys: TPLUSTSR.EXE

If you want to change the key combinations for switching between the four options, be sure you use a combination of keys that is not used by the application software you will be using.

Option 1.	TARGA+ output
Option 2.	VGA output
Option 3.	VGA overlay
Option 4.	Select Overlay Color

The three keys that can be programmed are SHIFT, CTRL, and ALT. You can use one, two, or all of these keys in conjunction with function keys F1 thru F10. (Each key is separated by a dash.)

For example, at the DOS prompt, type:

TPLUSTSR SHIFT-CTRL-ALT-F8
(space between TPLUSTSR and SHIFT)

When you assign different key combinations, remember that the four options controlled by the keys are ORDER DEPENDENT. The first key combination you define will become option number 1 (TARGA+ output). The second key combination will become option number 2 (VGA output), and so on. If you don't make a third or fourth change - the default keys remain intact for options 3 and 4. For example, suppose you typed in the following line:

TPLUSTSR ALT-SHIFT-F6 ALT-SHIFT-F7

Because the changes you make are ORDER DEPENDENT, this is how your keys are now programmed:

Option 1:	ALT-SHIFT-F6	TARGA+ output
Option 2:	ALT-SHIFT-F7	VGA output
Option 3:	CTRL-SHIFT-F3	VGA overlay
Option 4:	CTRL-SHIFT-F4	Select Overlay Color

Notice, that the default keys for options 3 and 4 did not change. "VGA Overlay" is still CTRL-SHIFT-F3, while "Select Overlay Color" is still CTRL-SHIFT-F4.

How to Use Option 4: Select Overlay Color

Option 4 "Select Overlay Color" lets you use a key combination to select the color which will become transparent and show the TARGA+ graphics through it.

To select an overlay color, simply press the key combination assigned to Option 4 and move your mouse/pointing device to the VGA or TARGA+ display and click on the VGA color you want to disappear when VGA overlay is enabled. Immediately upon selecting the overlay color - all areas that are the selected color will show TARGA+ graphics throughout.

Instead of using keyboard key combinations to select an overlay color, you can type in the appropriate commands to achieve the same results. For example:

1. Go to the directory where the PLUSMODE.EXE file is located (C:\TPLUS).

2. Then, to get TARGA+ graphics to appear on your TARGA+ display, type:

PLUSMODE TARGA <enter>

To get VGA graphics to appear on your TARGA+ display, type:

PLUSMODE VGA <enter>

To get VGA graphics to overlay on TARGA+ graphics on the TARGA+ display, type:

PLUSMODE OVERLAY ON [color value] <enter>

(where [color value] is one of the following colors - red, green, blue, black, cyan, magenta, yellow, or white, OR a VGA color palette number from 0 to 256). For example,

PLUSMODE OVERLAY ON RED

will overlay VGA graphics over TARGA+ graphics on the TARGA+ screen - and wherever the VGA image had RED - now shows TARGA+ graphics instead.

To turn overlay off, type: **PLUSMODE OVERLAY OFF**

Chapter 4 - Setup Software for Windows™ 3.0 / 3.1

OVERVIEW

Note: If you are using multiple TARGA+ boards in your system, Microsoft Windows and the Control Panel should be used on the first TARGA+ board in your PC. This first TARGA+ board is designated as board 0.

Note: The display configuration of the TARGA+ cannot be changed while you are running Windows. You must exit Windows, and use either TCONFIG or TMODE to alter your display.

Note: if your TARGA+ board is set at memory segment 0xD000, there may be a memory conflict problem when you run Microsoft Windows on the TARGA+. (The symptom of this problem is horizontal stripes on your TARGA+ display.) This problem is easily resolved by editing the system.ini file found in your Windows directory. Approximately 29 lines down is a line that reads:

[386Enh]

Immediately after this line insert the following line:

emmexclude=d000-dfff

Your file should now read:

[386Enh]
emmexclude=d000-dfff

INSTALLING THE TARGA+ WINDOWS DRIVER

Step 1:
Go to the WIN3 subdirectory in your TARGA+ Setup Software directory (default directory is TPLUS\WIN3).

Step 2:
At the DOS prompt, type **WDINSTAL** and follow the directions that appear on your screen.

The install utility will now proceed with the installation of the software files located in the WIN3 directory of the Setup disk. Useful messages will be displayed in additional dialog boxes as the process proceeds.

A final message will appear when the process is complete.

Step 3:
Run Windows. If the Program Manager's **MAIN** window is not visible, choose **MAIN** from the Program Manager's **WINDOW** menu.

Step 4:
Double-click on the **WINDOWS SETUP** icon in the **MAIN** window to run Windows Setup.

Step 5:
The **WINDOWS SETUP** window will appear and on it you will find several pieces of information listed; Display, Keyboard, Mouse, etc. Select **CHANGE SYSTEM SETTINGS...** from the **OPTIONS** menu on this window.

Step 6:
A second window will appear named **CHANGE SYSTEM SETTINGS.** On it you will see the same information that appeared on the **WINDOWS SETUP** window. The only difference is that to the right of each item you will find an arrow. Click on the arrow located to the right of the top item labeled "display."

Step 7:
Located in the **DISPLAY** settings list are two entries named TARGA+ and TARGA+ (Big Fonts). The (Big Fonts) option allows your Menus/Icons/Scroll Bars/etc. to be enlarged if you happen to be running in a high resolution mode.

Step 8:

Select one of the two TARGA+ options. TARGA+ (Big Fonts) should only be selected if you wish to run in the 1024 x 768 mode.

Step 9:

Click on the **OK** button at the bottom of the window when you have made your selection. This will initiate the installation of the new TARGA+ display driver into Windows 3.0 / 3.1. At this point the system may request that you insert the original Windows disks into the floppy drive so that it can retrieve additional font files.

Step 10:

When the installation is complete, a dialog box will appear and ask whether you want to **EXIT TO DOS** or **RESTART WINDOWS**. You may want to **EXIT TO DOS** and run the configuration program to set your display parameters such as resolution. If your TARGA+ mode is set correctly you can select **RESTART WINDOWS**.

On a two monitor system, one monitor will display your text based command line interface and the second monitor will display the TARGA+ buffer (which is where Windows 3.0 / 3.1 will reside). On a single monitor system, the TARGA+ Windows driver will automatically switch your display to TARGA+ mode when you begin a TARGA+ application. When you exit the TARGA+ application, you will switch back to your Windows environment.

Several other things you should know are listed below. Please be sure to make note of them before using your system.

Note: If your board is set at a memory segment other than 0xA000, there may be a memory conflict problem. (The symptom of this problem is horizontal stripes on your display.) This problem is easily resolved by editing the ***system.ini*** *file found in your Windows directory. Approximately 29 lines down is a line that reads similar to this:* ***[386Enh].*** *Immediately after this line insert the following line:* ***EMMExclude=x000-xFFF*** *where x is the memory segment.*

Note: The TARGA+ TSR (TPLUSTSR.EXE) which is used to toggle between TARGA+ output and VGA output will not function under Windows unless you are running COMMAND.COM (your text based command line) in a window or on a separate monitor.

*Note: If you select the **TARGA+ (Big Fonts)** driver and later switch to the **TARGA+** driver, the setup program fails to install the smaller fonts desired by the medium resolution modes. This is a bug in the Microsoft setup program. The only way around this is to switch to an older EGA driver, restart Windows, then switch to the medium resolution TARGA+ driver or go in and edit your WIN.INI file by hand. We do not recommend that you perform this latter procedure as you could cause major problems in your Windows system software.*

Note: Color icons are displayed with too few colors (or in monochrome). This is NOT a TARGA+ Windows driver bug.

Note: Some programs may not be able to handle the availability of 32 bit color and may crash during certain functions. The ZOOM IN mode in Windows Paintbrush is one such example.

Note: In 32-bit modes, icons look like garbage when they are dragged. This is NOT a TARGA+ Windows driver bug.

Following is a brief explanation of each file contained in the WIN3 directory on the TARGA+ Setup disk. These are the files that the installation and setup software described earlier requires in order to function properly. Normally they reside in the ***WINDOWS\SYSTEM*** directory on your hard drive. If your System directory is located at some other location, the installation program will take care of finding it and installing the files properly therein.

TARGAP.DRV

TARGAP.DRV is the Microsoft Windows 3.0 / 3.1 display driver for the TARGA+.

TARGAPHR.DRV

TARGAPHR.DRV is the high-resolution Microsoft Windows 3.0 / 3.1 display driver for the TARGA+.

TARGAP.LGO
TARGAP.LGO is the logo display program for Windows 3.0 / 3.1 startup.

TARGLOGO.DAT
TARGLOGO.DAT is the actual image file that is displayed by the TARGAP.LGO program.

WDINSTAL.EXE
WDINSTAL.EXE is the Windows TARGA+ installation program.

WDINSTAL.INF
WDINSTAL.INF is the installation data file used by the WDINSTAL.EXE install utility.

Chapter 5 - Setup Software for Autodesk® Products

OVERVIEW

To use the TARGA+ board with an Autodesk® product such as AutoCAD®, AutoShade®, or Autodesk 3D STUDIO™, you need to install the TARGA+ ADI driver.

> *Note: You cannot use your TARGA+ with Animator Pro and memory segment 0xA000. To use your TARGA+ with Animator Pro you must choose a memory segment other than 0xA000. Segment 0xD000 is recommended. This is due to a conflict with the standard VGA driver built in to Animator Pro.*

Keeping with the Autodesk naming convention for drivers, the executable file name for this combined Rendering/Display ADI driver is **RCPTARGP.EXP**. Since this is a combined driver it may be used as:

A display driver for AutoCAD 386
A rendering driver for AutoSHADE 386
A display driver for AutoSHADE 386
A display driver for Autodesk 3D STUDIO
A rendering driver for Autodesk 3D STUDIO

SUPPORTED MODES

The TARGA+ ADI driver should work with any TARGA+ mode. This driver assumes the TARGA+ will be used in the Advanced Operating Mode. Therefore, you must have the TARGA+ driver TARGAP.SYS loaded. (See Appendix G for details on installing TARGAP.SYS). You must also set the desired display mode before starting the Autodesk product.

AUTOCAD

To use the TARGA+ ADI driver with AutoCAD 386:

1. Copy the TARGA+ ADI driver to your AutoCAD directory (C:\ACAD is the default).

2. Add the line: **SET DSPADI=C:\ACAD\RCPTARGP.EXP**

   to either your AUTOEXEC.BAT file, or the batch file used to start AutoCAD. If your AutoCAD directory is not C:\ACAD, be sure to substitute the proper drive and directory in the SET command.

3. From the AutoCAD main menu, select Configure AutoCAD, then choose Configure Display. Your screen displays the current configuration for your video display and asks if you want a new display. If you answer yes, a list of display devices appears. Choose ADI P386 V4.0/4.1 display.

4. Answer the questions regarding the new display. Then return to the AutoCAD main menu.

AUTODESK 3D STUDIO

To use the TARGA+ ADI driver with Autodesk 3D STUDIO Version 1:

1. Copy the TARGA+ ADI driver to the Autodesk 3D STUDIO driver directory (C:\3DS\DRIVERS is the default)

2. Add the line: **SET RCPADI=C:\3DS\DRIVERS\RCPTARGP.EXP**

   to either your AUTOEXEC.BAT file, or the batch file used to start Autodesk 3D STUDIO. If your Autodesk 3D STUDIO driver directory is not C:\3DS\DRIVERS, be sure to substitute the proper drive and directory in the SET command.

3. You must edit the 3DS.SET file, to tell Autodesk 3D STUDIO whether to use the TARGA+ as a display or rendering device.

   To use the TARGA+ to display output from the RENDER command, change the line defining the default rendering device to: **DEFAULT-DISPLAY="RCPADI"**

   To use the TARGA+ as the main display in the 3D Editor, Keyframer, 2D Shaper, etc. change the line defining the primary display device to: **MAIN-DISPLAY="RCPADI"**

   To use the TARGA+ as the display for the materials editor change the line defining the materials editor display device to: **MATERIAL-DISPLAY="RCPADI"**

4. See the Autodesk 3D STUDIO Installation and Performance Guide if you need further help. At the present time there is no advantage to using the TARGA+ as the MATERIAL-DISPLAY device. It operates in 8-bit linked mode much like a VGA display. With this version of the TARGA+ ADI driver, it is possible to use the TARGA+ for all Autodesk 3D STUDIO output.

   If you do want to use the TARGA+ as both a display and rendering device AND you want to use a 32-bit mode, you must use an additional SET command: **SET TPLADI=4** in your AUTOEXEC.BAT.

ANIMATOR PRO VERSION 1.0

To use Autodesk Animator Pro Version 1.0 on the TARGA+, you must install the TARGA+ driver named **TARGAPLS.DRV**. This driver enables the flexibility and power of the TARGA+ to be used in conjunction with the extensive animation capabilities of Animator Pro.

Installation of TARGAPLS.DRV

To install the driver, simply copy the file TARGAPLS.DRV (located in the \TPLUS\ANIPRO directory) to the RESOURCE directory. This will usually be \ANI\RESOURCE. If you installed Animator Pro Version 1.0 into a directory other than \ANI be sure to use your directory name and append \RESOURCE.

(The TARGA+ DOS driver TARGAP.SYS must be installed in your CONFIG.SYS in order for the Animator Pro driver to work properly. This has probably been done. Consult Appendix G for specifics.)

How to Use

To use the TARGA+ with Animator Pro, you must first choose the resolution at which you will work. Typical values would be 512 x 486 for NTSC, 512 x 576 for PAL, or 640 x 480 for square pixels. The TARGA+ resolution is set by the TConfig utility. Please consult Chapter 2 for a description of this configuration program. You may choose any resolution offered by TConfig for use with Animator Pro. Choose either a 16-bit or a 32-bit mode. Regardless of whether you choose a 16-bit or a 32-bit mode, Animator Pro will only use 256 colors.

After choosing a resolution, you are ready to start Animator Pro. Start the program in your normal fashion. From the EXTRA menu, choose SCREEN SIZE. A list of supported video cards and modes should appear. Among them should be 3 modes for the TARGA+.

Mode 0 is always interlaced mode.

Mode 1 is always non-interlaced mode.

Mode 2 is always interlaced mode and a live video background.

Note that these are Animator Pro modes and are not related to TARGA+ modes.

Choose the Animator mode you want, Interlaced, Non-interlaced or Live Video. Animator Pro should switch to the TARGA+ screen. Animator Pro will ask if you want to start with a new full-screen Flic. Answer either Yes or No. If you choose NO, any currently loaded Flic will be preserved.

Different Resolutions

Whenever a different resolution is set with TConfig, Animator Pro will reset the default display device to your VGA. You must re-select TARGA+ from the SCREEN SIZE menu. You must set your desired resolution with TConfig each time you are starting Animator Pro.

Use with Live Video Background

TARGA+ Animator Pro Mode 3 provides you with a live video background. This assumes that a video source is correctly connected to your TARGA+, and that the TARGA+ is set correctly for RGB, Composite, or S-Video input. (This is accomplished using the TConfig program.)

When live video is chosen, the video signal input to the TARGA+ is shown whenever Animator Pro color number 0 is used. Any other color will overlay the live video signal. Color 0 is the default background color provided by Animator Pro for new flics. Color 0 is also the color Animator Pro uses by default for the black background of menus.

This can make menus hard to read, if the picture present on the live video has areas that are the same color as the menu foreground. When using live video, it is recommended you use the Pallette command of Animator Pro to change the RGB components of color 0 to something other than 0,0,0. This will force Animator Pro to use a different color for black menu backgrounds, and make the menus easier to read.

ANIPLAY

The TARGA+ driver is fully compatable with ANIPLAY, the stand-alone player that is provided with Autodesk Animator Pro. ANIPLAY uses the same configuration file as Animator Pro. If you choose the TARGA+ using SCREEN SIZE in Animator Pro, ANIPLAY will automatically use the TARGA+ also.

From within ANIPLAY, you can change the display device or mode using the SCREEN SIZE option of the FILES menu.

ANICONV

The TARGA+ driver is fully compatable with ANICONV, the stand-alone file conversion utility that is provided with Autodesk Animator Pro. ANICONV uses the same configuration file as Animator Pro. If you choose the TARGA+ using SCREEN SIZE in Animator Pro, ANICONV will automatically use the TARGA+ also. From within ANICONV, you can change the display device or display mode using the SCREEN SIZE option of the EXTRA menu.

This page intentionally left blank.

Chapter 6 - EISA Configuration File

OVERVIEW

Every EISA or ISA board that is to be installed into an EISA computer has an associated configuration file (CFG file) which describes options/parameters/settings on the board. The TARGA+ is no exception.

Before you install the TARGA+ into an EISA computer, you must run your EISA Configuration Utility to reconfigure the system and add this ISA board (TARGA+) to your System Configuration.

Run your EISA Configuration Utility to add an ISA board to your system. One of the menus will instruct you to locate the CFG file for the board you are installing. It is in the TPLUS directory (or the directory you chose) created by the TARGA+ Installation program and is labeled !TRU750.

This page intentionally left blank.

Chapter 7 - Chroma Key Capture Demonstration

INTRODUCTION - CHROMA KEY CAPTURE

Included in your TARGA+ Setup Software is a sample program that allows you to show off the powerful chroma keying capabilities of the TARGA+ board. It is found in the default directory C:\TPLUS\DEMO (unless you placed the TARGA+ Software in a directory of your choice).

The demo requires a chroma key blue screen and requires you to perform several operations, each of which is detailed out below. The net result of these operations demonstrates the TARGA+ board's ability to accept and control realtime parameters, perform professional level chroma keying and perform realtime video capture of the chroma keyed image.

> *Note: Because chroma key capture is actually a "recapture" of the output of the TARGA+ mixer - the live input chromakeyed over an image in memory, additional memory must be available. Therefore chroma capture is only possible in 16 bit resolution modes having a width of 512 pixels. For example, 512x400x16 or 512x486x16.*

Step 1— To run the Chroma Key Capture Demo, use the CD command to change to the directory containing this software. When that has been accomplished type: **CHROMA x y** (where **x** is the name of the TGA file to be used as the bufffer image, and y is the TGA file name of the chroma key captured TGA image)

At your DOS prompt, press the RETURN or ENTER key. This executes the Chroma Key Capture Demo program.

For example: There is an image provided with the TARGA+ Setup Software called 3.TGA. You can use this image as the **x** parameter (the buffer image) and use the name SAMPLE.TGA as the file name to save the captured image (the y parameter). At the DOS prompt, type: **CHROMA 3.TGA SAMPLE.TGA**

Step 2 — Follow the instructions that appear on your screen to select Input Type (NTSC or PAL? Composite, S-Video, or RGB?)

Step 3 — Adjust your lighting. This next prompt instructs you to adjust your lighting. When you have done so and are relatively confident with your lighting setup, press any key on the keyboard to proceed to the next step.

Step 4 — Adjust the Chroma Key level. (Range is 0 to 2.) The purpose of this step is to obtain the highest degree of contrast between the object that you are going to chroma key and the blue background. To adjust the Chroma Key Level value shown on the screen, move your mouse (or tablet stylus) forward or backward. This increases or decreases the value respectively. As you do this, be sure to watch your TARGA+ monitor to determine when the maximum contrast is achieved.

When you are satisfied with the setting, press the left mouse button to accept the new value. Pressing the right mouse button or any key on the keyboard selects the default value for this parameter.

Step 5 — Adjust the Clip level. (Range is 0 to 255.) When chroma keying, the purpose is to isolate an object or set of objects and superimpose them over a computer generated background. Sometimes you will desire a very clean edge between the object and the background and other times you may wish for a slightly more blurry edge with defined shadows on the background.

The Clip level allows you to determine how clean or shadowy this edge is. The lower the value (higher the contrast), the cleaner the edge will be. When you are again satisfied with the value that you have selected, press the left mouse button to accept your setting and proceed to the next step.

Step 6 — Capture the chroma keyed image. When all of the preceding steps are complete, you will see the chroma key effect that you have set up. From here you can do any additional adjusting of your camera or lighting and then capture the image. To perform the capture, simply press any key on the keyboard. The chroma keyed image will be captured into memory in real time and be displayed on your monitor. In addition, the saved image can be brought into a paint program such as TIPS for editing.

In order to see the saved image, use the **GETTGA** utility to see the file. Since your monitor is probably displaying the currently captured image, remove this image by loading another image such as 1.TGA and then load the saved file. (In the above example, it is the SAMPLE.TGA file.)

1. At the DOS prompt, type: **GETTGA 1.TGA** (or a TGA file of your choice) and press the RETURN key

The TGA file you choose will load and appear on your monitor.

2. Then type: **GETTGA SAMPLE.TGA** (or a file name of your choice) and press the RETURN key

The saved file will load and appear on your monitor.

Lighting Tips

Numerous applications exist in which the Chroma Key Blue process is employed. Many of these applications are quite complex. Yet, with the increased popularity of desktop video, more and more situations are calling for less complex setups. The Truevision TARGA+ and NuVista+® series of videographics boards were designed to help satisfy your Chroma Key needs. Still, neither Truevision products, nor any other, will compensate for poor lighting. Thus, the most important issue to address when preparing for a Chroma Key demonstration is lighting.

The minimum lighting components necessary for obtaining good Chroma Keying results are:

- 3 lighting instruments with 600+ watt lamps (3200°K color temperature)
- 3 barndoors (light shields)
- 3 tripods (for lighting instruments)

Three companies that manufacture lighting equipment are:

- Lowel® Inc.
  175 10th Ave.
  New York, NY 10018
  (718) 921-0600

  Grand Stage Lighting Co.
  630 W. Lake St.
  Chicago, IL 60606
  (312) 332-5611

- LTM Corp. of America
  1160 N. Las Palmas Ave.
  Hollywood, CA 90028
  (213) 460-4166

Simple lighting instructions are provided. *If you don't know, or want to know more about lighting, find a more knowledgeable source.* There are highly qualified lighting consultants throughout your city and state. Three lighting consultant firms are:

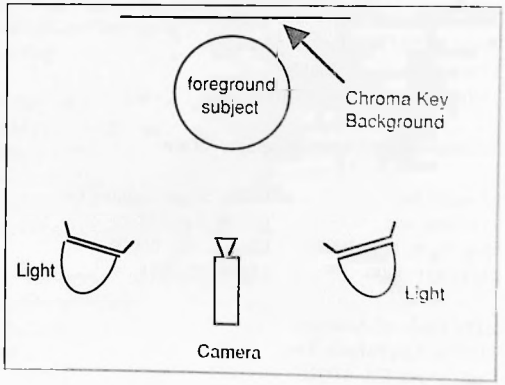
- Imero Fiorentino Assoc.
  44 W. 63rd St.
  New York, NY 10023
  (212) 246-0600

- Imero Fiorentino Associates
  6430 Sunset Blvd., No. 618
  Los Angeles, CA 90028
  (213) 467-4020

- Victor Duncan Inc.
  661 N. LaSalle St.
  Chicago, IL 60610
  (312) 943-7300

Check the phone book of your area for more listings. Public libraries are another good source for information.

Simple Lighting Instructions



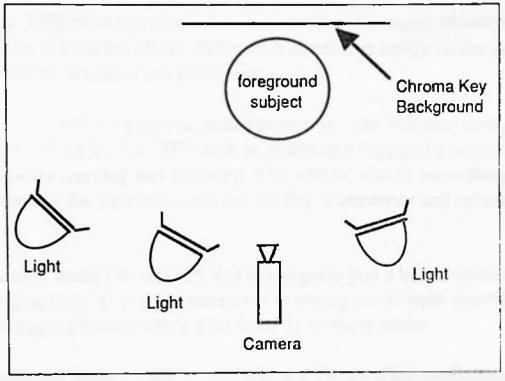
1. Try using two lights first. An even wash of light is needed on both the subject and the background for Chroma Key to look good.

NOTE: Unsatisfactory Chroma Key results are usually due to poor lighting, not the board.

2. Lights should be back just far enough so that the Chroma Key blue background is evenly filled with light.

   - Make sure the camera is white balanced.
   - Adjust lights for the camera, not the eye (i.e., rely on the scene displayed on the monitor, and adjust lights according to that scene).

3. If you don't get good results with two lights, use three lights. Refer to figure below.



This page intentionally left blank.

Chapter 8 - Demo TIPS

INTRODUCTION TO DEMO TIPS

Welcome to the exciting world of computerized painting and video imaging. The Demo TIPS software included with your TARGA+ board is a demonstration version of the TARGA+ TIPS Imaging Software available from Truevision.

Once you have properly installed your TARGA+ board and the TARGA+ Setup Software, Demo TIPS gives you the opportunity to use the TARGA+ immediately. In addition, Demo TIPS enables you to evaluate some of the features and functions of our award-winning paint package - TARGA+ TIPS.

Although Demo TIPS does not give you access to all of the many functions in TARGA+ TIPS, you will be able to see all the different features that comprise the full paint program. (The features that are disabled are greyed-out.)

Not only will you be able to perform basic operations, you will also have access to the more powerful features of TARGA+ TIPS such as grabbing a digitized image, painting onto live video, and hardware panning and zooming. You will be able to move through the different levels of the menu to the submenus and see the list of attributes and options available in each feature.

We hope you enjoy using Demo TIPS and that it gives you a better understanding of the power of videographics. If you are interested in seeing an in-depth demonstration of the full-blown paint package, please contact your local Truevision dealer.

When you purchase TARGA+ TIPS, you also get TypeRight Font Software. TypeRight allows you to add high quality anti-aliased text to TARGA+ images, with total editing features such as kerning, leading, scaling and rotation.

FEATURES OF DEMO TIPS

The following is a list of features available in Demo TIPS.

- Drawing Functions
  - Freehand
  - Line
  - Rectangle
  - Move
  - Circle
  - Text
  - Clear
  - Frame Grab
- Special Functions
  - Video Overlay
- Brush Functions
  - Brush
  - Edit Brush
- Color Functions
  - Create RGB colors
- Storage Functions
  - Load/Save Pictures and Windows
  - Exit to DOS

THE COMPLETE TARGA+ TIPS FEATURES

The following is a list of features *not available in this demonstration version,* but which are available in the actual version. If you are looking for premium painting and imaging functionality, then Demo TIPS is the program for you!

- Main Menu Functions
  - Q-Save and Q-Load
  - Undo
  - Printer
- Special Functions
  - Mosaic
  - Perspective
  - Fractal
  - Slide
  - Duplicate
  - Tile
  - Cycle Draw
  - Antialiasing
  - Mask
  - Chroma Key
  - Gamma
  - Airbrush
  - Tint, Wash and Shade
  - Blend
  - Spread
  - Mirror
  - Grid
- Brush Functions
  - Saving Brushes
- Pattern Functions
  - Copy, Get, Edit, Saving Patterns
- Color Functions: RGB, HLS
- Storage Functions: Compress-Save, Move, Delete, Save
  - Fonts
  - Brushes
  - Color Palettes
  - Patterns
  - Masks
- Drawing Functions: Curve, Triangle, Fill, Circle, Polygon, Arc, Parallelogram, Oval

GETTING STARTED WITH DEMO TIPS

If you are like most people, you want to start using a new product right away and only read a user's guide as a last resort. If you are unfamiliar with some of the terminology you encounter, please check the last section in this chapter. Although Demo TIPS is easy to use, you should follow these guidelines for best results:

1. Make sure you have the necessary hardware and software to run Demo TIPS.
2. Backup the software.
3. Install Mouse or Graphics Tablet
4. Start Demo TIPS.

Minimum System Requirements

To run Demo TIPS, you need the following hardware and software:

- ❑ AT Style (ISA bus) compatible computer with 640K of RAM
- ❑ A hard disk system.
- ❑ Pointing Device such as: Microsoft Mouse,
  Summagraphics 961 or 1201 graphics tablet, Bit Pad One Compatible graphics tablet, or
  Kurta IS/ONE tablet.
- ❑ TARGA+ board properly installed.
- ❑ TARGA+ DOS driver properly installed.
- ❑ User defined screen resolution set up with TARGA+ Setup Software.
- ❑ An analog RGB monitor, Composite Video Color monitor, or an S-Video monitor.
- ❑ The TARGA+ Demo TIPS Executable Disk.
- ❑ (Optional) A video source such as a video camera, VCR, or videodisk.

Installing Your Mouse or Graphics Tablet

This section explains how to install a mouse or graphics tablet for use with Demo TIPS.

Mouse

If you are using a mouse, be sure that the mouse driver is correctly installed before loading the program.

The mouse driver is provided on a diskette with your mouse. To install this driver, type in the name of the mouse driver (e.g., MOUSE if you have a Microsoft Mouse) and then press **RETURN**.

> *NOTE: If you are using a mouse as your input device, you must install the mouse driver each time your computer is powered up or DOS is initialized. Or, you may find it convenient to have your mouse automatically installed each time DOS initializes. Simply add the name of the mouse driver to your AUTOEXEC.BAT file.*

Graphics Tablet

You can use a Summagraphics 961, Summagraphics 1201, KURTA IS/ONE, or Bit Pad One graphics tablet (or compatible) with Demo TIPS. The Demo TIPS Executable Disk contains drivers for these graphics tablets. Copy the drivers to your hard disk, and at the hard disk DOS prompt, do the following:

To install the Summagraphics 1201 tablet driver, type in the command:

SUMMA/12

To install the Summagraphics 961 tablet driver, type in the command:

SUMMA/9

To install the KURTA IS/ONE tablet, simply use the default switch settings on the tablet and install the driver that is provided with the KURTA tablet.

K_ISPS

Or, configure the KURTA tablet to act as a Summagraphics tablet and install the SUMMA driver.

To install a Bit Pad One tablet driver, type in the command:

BITONE

Be sure that your graphics tablet is configured to be Bit Pad One compatible.

Your graphics tablet must communicate with a serial port on your computer at 9600 bps. The driver assumes that your tablet is connected to Communications Port 1. However, you can add a command line option if you want to connect it to Communication Port 2. For example, to connect a tablet to Communication Port 2, type:

[tablet name] **/COM2**

You must install the graphics tablet driver each time your computer is powered up or DOS is initialized. Many people find it convenient to have their mouse or graphics tablet driver automatically installed each time DOS is initialized. Simply add the command name to your AUTOEXEC.BAT file to do this.

Video Input

Demo TIPS lets you digitize live video images from:

A video cassette recorder

A video disk player

A color or black and white video camera

Any NTSC composite video source
(using a NTSC TARGA+)

Any PAL composite video source
(using a PAL TARGA+)

Any analog RGB or S-Video source

The TARGA+ accepts either a composite, S-Video or an analog RGB input.

STARTING DEMO TIPS

Once you have properly installed your TARGA+ board and TARGA+ Setup software, go to the directory that contains your Setup software and use the TARGA+ configuration program to choose a display resolution in which you want to run Demo TIPS.

Then, simply place the TARGA+ Demo TIPS diskette in a 1.2MB drive, change to the name of your diskette drive (A: or B:, etc.), and at the DOS prompt type:

TIPSDEMO (then press RETURN key)

The Demo TIPS Title Page will come up on your video screen with a pink message bar that states "This is a Demonstration version of TARGA+ TIPS V1.5." The Cursor will move as you move your mouse or graphics tablet stylus. Press any button on your pointing device or mouse and the main Demo TIPS menu appears.

The Single Monitor Solution

You can use Demo TIPS with a single multi-scan monitor and switch back and forth between VGA and TARGA+ display mode.

You should start out in VGA display mode. You can do this two ways. One, you can set up the TARGA+ DOS driver for the default display mode (VGA display) or you can use the TSR (TPLUSTSR) to place your monitor in VGA display mode. (Read the instructions in Chapter 3 for more information.)

Then type in TIPSDEMO at the DOS prompt. The program will automatically switch you to TARGA+ display mode and you are able to use Demo TIPS without delay. When you are finished, simply exit to DOS using the DOS icon. Again, Demo TIPS will automatically switch back to VGA graphics.

IMPORTANT CONCEPTS - DEMO TIPS

This Chapter discusses some of the key concepts relevant to using Demo TIPS. These concepts include selecting and canceling, canvas, color palette, pixels, cursor control, working with the menus, returning to DOS, interlaced & non-interlaced modes, cursor and screen coordinates, panning/zooming, and current selections.

Select and Cancel

There are two basic instructions you give to Demo TIPS: **Select** and **Cancel**. You communicate with Demo TIPS by: selecting frames and icons from menus. (An icon is a button on the menu that has a pictorial representation of a function. A frame is a button on the menu that has a text or word representation of a function.)

- Drawing while pressing **Select**.
- Canceling operations.
- Canceling to return to a menu to make a new selection.

The procedures for pressing **Select** and **Cancel** are different for the different input devices that you can use with Demo TIPS.

Mouse

If you are using a mouse as an input device, use the two buttons on your mouse to send **Select** or **Cancel** instructions to Demo TIPS. The left button on the mouse is referred to as **Select,** and the right button is referred to as **Cancel.**

When you read that you are to "press **Select**," press the left mouse button and then release it. When you read that you are to "press **Cancel**," press the right mouse button and then release it.

Summagraphics Graphics Tablet

If you are using a Summagraphics 961 or 1201 graphics tablet and stylus, there are two switches you press to send **Select** and **Cancel** instructions to Demo TIPS. The tip switch on the end of the stylus is referred to as **Select,** and the barrel switch on the side of the stylus is referred to as **Cancel.** When you read that you are to "press **Select,**" press the tip switch down on the tablet and then release it. When you read that you are to "press **Cancel**," put the stylus near the tablet, press the barrel switch, and then release it. The stylus must be on or near the tablet for **Cancel** to operate.

Bit Pad One Graphics Tablet

If you are using a Bit Pad One (or compatible) graphics tablet and stylus, you must use the tip switch on the end of the stylus to send both **Select** and **Cancel**. When you read that you are to "press **Select,**" press the tip switch down on the tablet and then release it. When you read that you are to "press **Cancel**," move the stylus below the bottom of the screen and press the tip switch down -- then release it. If you are using a Bit Pad One compatible tablet whose stylus has a barrel switch, try sending **Cancel** by simply pressing the barrel switch. This simplified procedure works with the Summagraphics Bit Pad Two and may work with your tablet.

Kurta IS/ONE tablet

If you are using a Kurta IS/ONE graphics tablet and stylus, there are two switches you press to send **Select** and **Cancel** instructions to Demo TIPS. The tip switch on the end of the stylus is referred to as **Select,** and the barrel switch on the side of the stylus is referred to as **Cancel.** When you read that you are to "press **Select,**" press the tip switch down on the tablet and then release it. When you read that you are to "press **Cancel**," put the stylus near the tablet, press the barrel switch, and then release it. The stylus must be on or near the tablet for **Cancel** to operate.

Canvas

The Canvas is the part of the screen where you create pictures, capture and modify digitized images, and use Demo TIPS' drawing functions.

Color Palette

The TARGA+ has a palette of 32,768 possible colors if you are in 16-bit mode, and a palette of 16 million possible colors if you are in 32-bit mode. All of the colors in this full palette are always available to you in Demo TIPS, but a smaller Working Palette displays 256 colors at a time. The Working Palette provides a convenient selection of colors for you to work with and is displayed with all of Demo TIPS' menus. You can load whatever colors you want into this palette.

See the description of the Color Menu for more information on the palettes and how to mix colors.

Pixels

The term "pixel" is short for "picture element." A pixel represents the smallest area of the screen that can be changed to a different color. Changing the color of one or more pixels requires the ability to point to the pixel(s) you want changed. Pointing is done using the Cursor.

Cursor

The Cursor is an image on the screen that moves when you move your mouse or graphics tablet stylus or when you press the keyboard arrow keys. The Cursor indicates the current drawing or selection position on the screen. During different activities, the Cursor takes on different shapes to remind you where you are in a process and what input Demo TIPS expects next. The default Cursor for Demo TIPS is a cross hair design that you can center on one pixel. Special Cursors that appear when you use certain functions and special effects are described later in the Brush Function section.

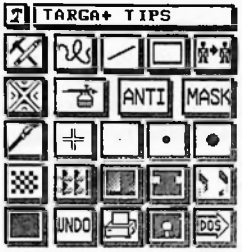
If you don't see the Cursor, move your mouse or stylus (or press the keyboard arrow keys) so that the Cursor moves around the menu and the Canvas.

If you are using a graphics tablet, remember that the tip of the stylus must be close to or touching the surface of the tablet.

Menus

Demo TIPS Main Menu

When you begin a Demo TIPS session, you see the Demo TIPS title page. After you press **Cancel** or **Select**, the Main Menu appears on top of the image that was on your screen before you entered TIPSDEMO.



Demo TIPS Main Menu

Selecting a Function

After moving the Cursor on a frame or icon in the current menu, you can select that function by pressing **Select** (left mouse button, stylus tip switch, or ALT key).

Moving Menus

Each menu has a Title Bar (containing the words TARGA+ TIPS) along the top edge. You can use the Title Bar to move the menu to another location on your Canvas:

1. Put your Cursor on the Title Bar.
2. Press **Select**.
3. Move the ghost Menu and Palette to the new location.
4. Press **Select** again.

The menu will be redrawn at that spot. You can move the menu to see any area of the screen.

Clearing Menus

To remove a menu from your Canvas, move the Cursor to the Canvas (off the menu) and press **Cancel**.

Recalling Menus

When you want to recall the previous menu to the Canvas, press **Cancel**.

Returning to a Higher Menu

Demo TIPS menus have a hierarchical or tree-like structure. That is, you always move to a new menu by selecting a frame in the current menu. To leave the current menu and return to the next higher menu in the hierarchy, move the Cursor onto the Menu and press **Cancel**. Since the Main Menu is at the top of the menu hierarchy, you return to the Canvas when you press **Cancel**. To return from the current Menu to the Main Menu, **Select** the Palm Tree in the upper left corner of every menu.

Returning to DOS

Always end a Demo TIPS session from the Main Menu. Follow this procedure when you are ready to return to DOS:

1. Bring the Main Menu on the screen by pressing **Cancel**.

2. **Select** the DOS icon.

3. The Exit Submenu will appear. **Select** the "YES" frame.

Pan and Zoom

Demo TIPS uses the Pan and Zoom capabilities of the TARGA+ to allow you to perform delicate editing of your images.

To enlarge the portion of the Canvas surrounding the Cursor, press **F10**. One-quarter of your Canvas now fills the entire screen. Pressing **F10** again enlarges the area around your Cursor by another factor of two (4X). You may press **F10** again for 8X enlargement. This is the largest the Demo TIPS will zoom.

Press **F9** to reduce the screen's magnification by a factor of 2X.

If you press **F7** while the screen is enlarged, the screen immediately returns to normal (i.e., 1X). If the screen is not zoomed, you can restore the previous magnification by pressing **F7.**

Note: After you draw something in Zoom mode and press **Cancel**, the screen returns to normal size. However, selecting a new tool to draw with and pressing **Cancel** returns canvas to Zoomed mode.

Exiting from Demo TIPS Using the Keyboard

For permanently exiting to DOS, you can press CTRL-C on your keyboard at any time during a session. This allows you to safely break out from within the Demo TIPS program. The cursor disappears from the screen and the following display appears on your System CRT:

Terminate TARGA+ TIPS?

Enter choice:

Type **y** <press the RETURN key>
to permanently exit to the DOS prompt.

Type **n** <press the RETURN key>
to directly re-enter the Demo TIPS session.

Safe Title Area

*(**NOTE:** This option is only available in the 512 x 400 resolution and the 512 x 486 resolution.) To see the Safe Title Area, press **F6.** A rectangular line frame is drawn highlighting the Safe Title Area on the monitor. In video production, the Safe Title Area is the area that would be viewable when taking into account the bezel area of a monitor or TV.*

This allows you to check that the text and graphics you are creating in your particular display resolution are not hidden by the bezel. This frame will be erased when you press **F6** a second time or when you **Select** a new function.

You cannot select a new function with this 'ON'. Press **Cancel** or **Select** to turn this function OFF - or press **F6** again.

Interlaced vs. Non-interlaced Mode

To switch between interlaced and non-interlaced mode, press the **F3** key. If you are in an interlaced mode, pressing **F3** will toggle your display mode to non-interlaced. If you are in a non-interlaced mode, pressing **F3** will toggle your display mode to interlaced.

Cursor and Screen Coordinates

Demo TIPS displays the current Cursor position as well as the distance (in screen coordinates) that your Cursor has moved since the last anchored position (pressdown of mouse or stylus). This information is useful in creating and aligning your drawings. You display the screen coordinates by pressing the **F2** key on your keyboard. When you press **F2**, your system CRT will display two rectangles. The top rectangle shows horizontal and vertical screen coordinates for the Cursor. The bottom rectangle shows horizontal and vertical distance in pixels of the present Cursor position from the previous selected position.

Current Selections

When you use Demo TIPS, the Main Menu always highlights your current Function, the current Brush, and current Color selection. You use these selections when you manipulate the screen.

When you first look at the Main Menu, notice that several frames on it are highlighted in pink. These are the current program choices. The Main Menu initially defaults to Draw for the current Function, the Cursor Brush (cross hairs) for the current Brush, and the color of the top left color chip in the Working Palette as the Current Color.

The Draw function is highlighted in the top row. The Cursor Brush is highlighted in the row of brushes to the right of the Brushes Menu icon. The Current Color is shown in the frame in the lower left corner on each menu. **Select** the Current Color icon when you want to access the Color Menu.

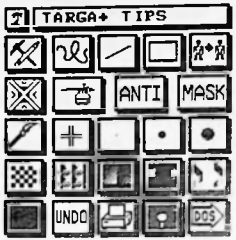
Main Menu Selections

The Main Menu always displays the current Function, the current Brush, active Special Effect, and the Current Color as well as showing the most recently used selections. For example, when you **Select** a new function, it then appears on the Main Menu and is highlighted as long as it is selected. When you **Select** another function from the Functions menu, it replaces the least recently used selection in the top row on the Main Menu.

In a similar manner, Demo TIPS will cycle Brushes, Patterns, and Special Effect selections through their rows in the Main Menu. When a new selection is made, it replaces the least recently used selection in that row.

MENUS AND FUNCTIONS - DEMO TIPS

The Main Menu is the first menu that appears after you load Demo TIPS:



Demo TIPS Main Menu

The Main Menu is the top of the Demo TIPS menu hierarchy. You always start from the Main Menu when you access other menus and you always eventually return to the Main Menu. The five icons in the left column of the Main Menu represent the Function Menu, the Special Effect Menu, the Brush Menu, Pattern Menu, and the Color Menu. Select these icons to directly access their menus.

On the line after these icons, Demo TIPS gives you a selection of four of the most frequently or recently used functions, special effects, brushes, and patterns. The Color Menu icon is the frame in the lower left corner and it always shows the Current Color. The five menu icons in the left-hand column appear on every menu. This means that you can directly access the Function, Special Effect, Brush, Pattern, and Color menus from every menu. The other four icons in the bottom row of the Main Menu only appear in the Main Menu. Use the DOS icon when you want to quit and use the Storage (Disk) to access and store files. (The UNDO and PRINTER functions are not available in this demo version.)

The Working Palette

The Working Palette consists of 256 colors that you can use while working on images. These colors are displayed at the bottom of every menu.

Working Palette

The Working Palette consists of four rows of 64 colors chips. Choose a color from the palette by putting your Cursor on it and pressing **Select**. That color becomes the Current Color and fills the Color Menu icon.

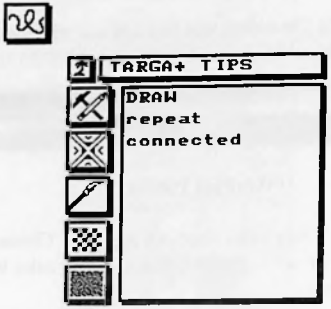
TO choose a color from the canvas while a menu is present, position the Cursor on the color that you want and press **Select**.

The Function Menu

Function Menu

The Function Menu contains TIPS' drawing tools, text function, special functions (Move, Mosaic, Slide, Fractals, Perspective, and Grab), the Clear function, and the Printer function.

Draw Function



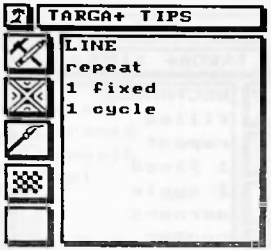
Draw Attribute Submenu

The Draw Function enables you to draw on the Canvas in a freehand fashion. You draw by pressing **Select** while moving the Cursor. Release **Select** when you finish drawing.

The Repeat attribute draws a series of single points (or brush images) on the Canvas while you press **Select**. You create either a series of points or a line depending on how fast the Cursor is moved.

Use the Connected attribute with the Repeat attribute to draw continuous lines. Demo TIPS now draws a continuous line without gaps no matter how fast you move the Cursor.

Line Function



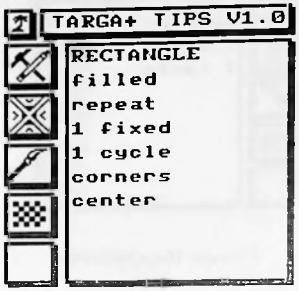
Line Attribute Submenu

The Line function draws straight lines. You specify the location of the starting point by pressing **Select**. Move your pointing device to the end point for your line and press **Select** again.

The Repeat attribute lets you continue drawing new lines as long as you press **Select**. The 1 Fixed and 1 Cycle attributes let you draw repeated lines using either the same first point or the last point of the previous line, respectively.

For example, **Select** the 1 Fixed attribute to draw a series of spokes radiating out form a hub or the 1 Cycle attribute to draw a series of connected lines as seen in the following example. Use Line with the 1 Cycle attribute to outline an object. Start at any point on the object and move the Cursor along its outline. Press **Select** whenever you want to draw a new line segment. This is safer than Free-Hand Draw since new line segments are only drawn when you press **Select**. Press **Cancel** to stop.

Rectangle Function



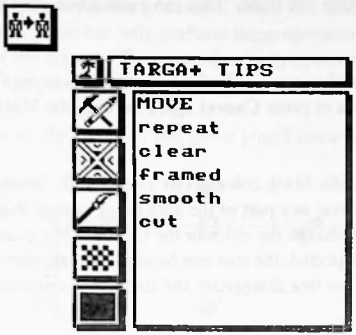
Rectangle Attribute Submenu

The Rectangle function draws rectangles. You specify the location of two points in accordance with the attribute that you have selected. You can **Select** either the Corners or Center attribute. When you **Select** the Corners attribute, you first locate one corner and press **Select**. You then see a rubber-banding rectangle when you move the Cursor. Press **Select** when the rectangle is correct. At this point, press **Cancel** if the first point is incorrect and you want to try again. When you **Select** the Center attribute, you first **Select** the center of the rectangle and then one corner.

Selecting the Filled attribute will cause the Rectangle to be painted solid with the Current Color or Pattern.

The Repeat attribute lets you continue drawing new rectangles as long as you press **Select**. The 1 Fixed and 1 Cycle attributes let you draw repeated rectangles using either the first point or the last point, respectively, of the previous rectangle. Each time you press **Select**, you will get another rectangle.

Move Function



Move Attribute Submenu

The Move function serves many different purposes. It can cut, copy, shrink, enlarge, and flip sections of your Canvas. When none of its attributes are selected, Move works in a "cut and paste" fashion. When the menu clears from the screen, the Cursor is at the center of two intersecting lines. These lines move with the Cursor and aid in targeting the corners of the area you want to frame and copy. Example:

1. Load a picture or paint one on the Canvas.
2. **Select** Move from the Function Menu. The Move Submenu appears.
3. Move your Cursor to the Canvas and press **Cancel**. The submenu clears.
4. Move the Cursor to one corner of the area you intend to copy and press **Select**. A rubber-banding frame appears.
5. Move the stylus so the frame encloses the area to be copied and press **Select** again. The frame effectively becomes the Cursor. Although it appears to be empty when you move it, you paste a copy of the frame any time you press **Select**. Move the Cursor and press **Select** a few times.
6. Press **Cancel**. If you want to define another frame to copy, repeat steps 4 and 5. Press **Cancel** to go to the Main Menu.

When you invoke the 'repeat' attribute, you can paint within an area by continuing to press **Select** while moving the frame. As you move the frame you paste overlapping copies of the original framed area along the path you trace. This can yield some very surprising and interesting results.

At any time, you can press **Cancel** to cancel the frame and return to the Cursor. At this point, you can frame another area or press **Cancel** again to bring the Main Menu back to the screen.

The Clear attribute makes a specific black color (RGB value 0.0.0) "transparent". When you use Move to copy and paste an area, any part of the area being copied that is the special transparent black color does not change the color or the Canvas. For example, if you create a tree against the black color background, the tree can be copied to another part of the picture while the black background for the tree disappears and does not paint over the objects already there.

When the Cut attribute is selected, the area you frame is "cut out" of your picture. You can move and paste the framed area in another place. The area where the frame was cut is filled with the background color. The background color is always the first (top, left) entry in the Working Palette.

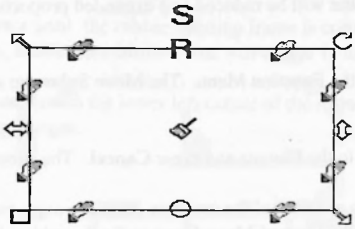
Framed Move Attributes

The Framed attribute for the Move Function is a function in its own right. After you specify an area to be copied, a frame appears around that area. The frame has its own attributes. Icons for these attributes appear as you move your Cursor around the frame. The Clear and Cut attributes of Move also work with Framed Move.

Because Framed Move includes Move attributes plus a set of its own attributes, it is a powerful tool for creating and altering graphics. A good working knowledge of Move and Framed Move enables you to alter your paintings quickly and easily. You **Select** a Framed Move area in the same way as Move. Press **Cancel** when you want to **Select** another area for Framed Move. Press **Cancel** a second time to return to the Main Menu.

Several Framed Move functions (Rotate, Shrink, Flip, and Expand) require additional memory. If you do not have an Expanded Memory Board, you will see the message "NOT ENOUGH RAM" on your computer's monitor when you **Select** these functions and the copy frame is too large. You can only perform these operations with a framed area covering less than one-third of the screen. The exact size that you can manipulate depends on how much memory your computer has available.

The icons that appear on the frame as you move your Cursor represent the Framed Move attributes:



Framed Move Icons

To **Select** any Framed Move attribute, move the Cursor around the frame until you locate the icon and press **Select**.

Paste

Paste is represented by the small square icon on the lower left corner of the copy frame. Press **Select** with your Cursor on the Paste icon to paint the Framed Move frame once. You must **Select** paste after you move, rotate, shrink, or expand your image. The modified frame is not copied to the Canvas until you do.

Regular Move

You can move the Framed Move frame by pressing **Select** over any portion of the frame where you see a "hand" icon. Continue to press **Select** while you move the frame to any location on your Canvas. When you release **Select**, the frame stays put until you move it again.

Paint Move

Paint Move is represented by the brush icon. Press **Select** with your Cursor on the brush icon within Framed Move. Keep pressing **Select** as you "paint." You stop painting when you release **Select**.

Proportional Shrink or Enlarge

Use this function to reduce or expand the size of the framed area. As you size the framed area, the rubber-banding frame will be reduced and expanded proportionally in the horizontal and vertical direction.

1. **Select** Move from the Function Menu. The Move Submenu appears. **Select** the Framed attribute.

2. Move your Cursor to the Canvas and press **Cancel**. The submenu clears.

3. Move the Cursor to a corner of the area you intend to copy and press **Select**. **Select** the other corner of the Framed Move frame to fix the rubber-banding rectangle.

4. **Select** the up-arrow icon (in the upper-left corner of the frame) and a rubber-banding frame appears.

5. Move the Cursor to increase or decrease the dimensions of the frame.

6. Press **Select** to repaint the frame to the specified size. In a few seconds, the Framed Move frame is redrawn and is adjusted to encompass the new area.

7. **Select** the Paste icon in the lower left corner of the frame to write the changed image to your Canvas.

Rotate

Use the Rotate function of Framed Move to rotate the framed area around the center point of the frame. As you move the Cursor, the rubber band frame will rotate indicating the final position of the Framed Move frame.

1. Use the Framed Move function and **Select** a copy frame. **Select** the Rotate icon (the upper, right corner of the frame) and a rubber band frame appears.

2. Move the Cursor until the rubber-banding frame is correct. Then press **Select**. In a few seconds, the Framed Move frame will appear in its rotated position.

3. **Select** the Paste icon in the lower left corner of the frame to write the changed image on your Canvas.

Smooth/Rough **S**
R

This function allows you to control the Smooth attribute of the Framed Move function. When the Smooth attribute is turned on, Demo TIPS creates a "smooth" image when you enlarge or compress a frame using the Shrink or Expand feature of the Framed Move function. If Smooth is turned off, the new image may have a rough appearance when it is enlarged or compressed. To retain the look of an image which has sharp contrasts or geometric figures, you should use Rough. To retain the look of an image with smooth transitions such as clouds or gradients, you should use Smooth.

When you move the Cursor along the top edge of the Framed Move frame, you will see either the letter "S" or "R". If S is present, the Smooth attribute is selected. If you press **Select** when you see this icon, the Smooth attribute is turned off and the icon changes into an R. Similarly, you can enable Smooth if it is turned off by pressing **Select** when the "R" icon is present.

When you create a new Framed Move frame, the Smooth attribute is reset to the value shown in the Smooth frame in the Move Submenu. That is, Smooth is turned on if the Smooth frame is highlighted and Smooth is turned off if Smooth is not highlighted.

Flip Vertically

The Framed Move frame can be flipped top to bottom by selecting the Flip Vertical icon.

Flip Horizontally

The Framed Move frame can be flipped from left to right by selecting the Flip Horizontal icon.

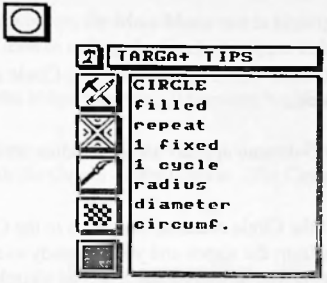
Stretch

The Stretch function is similar to the Proportional Shrink or Enlarge function except that the vertical sizing and horizontal sizing are independent. For example, the width of the Framed Move frame can be maintained while the height is increased or decreased.

Transparent

When the Transparent icon has been selected, all black (RGB 0,0,0) parts of the Framed Move frame will become "invisible." This means, that as the frame is painted or pasted on the Canvas, these black areas will not cover or paint over the Canvas. This function allows you to create and paint with irregularly shaped objects by making the unwanted part of the frame transparent (RGB 0,0,0).

Circle Function



Circle Attribute Submenu

The Circle function draws a circle after you specify two or three points necessary to complete its definition. The three possible definitions are: Radius, Diameter, and Circumference.

For Radius, **Select** the center of the circle and then Select any point on the edge of the circle. For Diameter, **Select** the two end points of a diameter of your circle.

For each of these definitions, a rubber-banding circle appears after you Select the first point. The rubber-banding circle lets you see how your circle will look when you move the Cursor to the second point. The Circumference definition lets you **Select** three points on the circumference of a circle. A rubber-banding line appears after you **Select** the first point and a rubber-banding circle appears after the second point.

The Repeat attribute lets you continue drawing new circles as long as you continue to press **Select**. The 1 Fixed and 1 Cycle attributes let you draw repeated circles using either the first point or the last point of the previous circle, respectively. For example, use the 1 Fixed attribute to draw a series of concentric circles.

When a circle is created, it will have the **correct aspect ratio** for the display resolution you are currently working in. Be aware, however, that the circle's aspect ratio cannot be maintained if you use the image in a display resolution other than the resolution in which it was created. If you do, the circle will look stretched or squashed.

Drawing Circles

To draw a hollow circle:

1. (Clear the current screen.) Move the Cursor to the Circle icon in the Function Menu and press **Select**.

2. The Circle Attribute Submenu appears and the Radius attribute is highlighted. For now, make no changes.

3. Move the Cursor off the Circle Attribute Submenu to the Canvas and press **Cancel**. The Submenu clears from the screen and you are ready to draw on your Canvas. Demo TIPS is ready for you to specify the center of a circle.

4. Move the Cursor to the point where you want the center of the circle. Press **Select**. The Cursor is replaced by a flexible circle that expands when you move away from the center point and shrinks when you move back toward the same point. The changeable, rubber-banding circle is not drawn on the Canvas until you press **Select**. NOTE: This feature is referred to as "rubber-banding." You will find that many Demo TIPS functions have it. This enables you to set the size and location of a figure correctly on your first attempt.

5. Continue to move your input device until you are satisfied with the size of the rubber-banding circle. Press **Select**. A circle is drawn and the Cursor reappears. If you want to draw more circles, repeat Steps 4 and 5.

6. After you draw several circles, press **Cancel**. The Main Menu returns to the screen.

Filled Circle

The Circle icon is now showing on the Main Menu and is highlighted. Press **Select** with your Cursor on the Circle icon to call up the Circle Attribute Submenu.

1. For now, **Select** the Filled attribute. It becomes highlighted. Radius is already highlighted.

2. Press **Cancel** with the Cursor on the Canvas. The Circle Attribute Submenu disappears.

3. Put your Cursor on the center point for a filled circle and press **Select**.

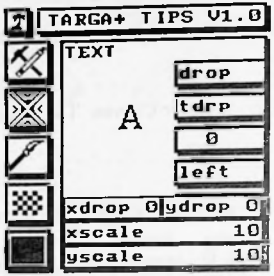
4. Move the Cursor to see the rubber-banding circle and press **Select** when you like the size. This time, the circle is filled with the Current Color.

Cancelling a Circle

Draw several filled circles. However, at some point, press **Cancel** after you have set the center point for a circle. The circle is not drawn, the Cursor appears, and you are ready to specify the center point for another circle. This is another use of **Cancel**. Use **Cancel** to interrupt the figure drawing process. Any time you start to draw a geometric figure and decide you have placed the center point (or some other point) in the wrong spot, simply press **Cancel** to "start over".

Now, press **Cancel** once (or twice, if you are in the middle of drawing a figure) to return to the Main Menu.

Text Function



Text Submenu

The Text Function lets you write characters on the Canvas using the currently selected color or pattern. You can position your text any place on your Canvas and write it at any angle.

In this demonstration version, only the frame labeled "left" is actually available to you. This frame indicates whether the text you enter is centered around the starting point you **Select** (center), is inserted to the left of the Cursor (left), or is inserted to the right of the Cursor (right). The capital "A" in the upper left area of the Text Menu is the size that it will appear on the Canvas.

When you are ready to enter text, press **Cancel** after moving the Cursor off the Text Submenu. The Text Cursor appears.

Text Cursor

Select the point where you want the text to begin and put the Cursor there. The first character of the text will be placed on the L-shaped part of the Text Cursor.

When you move your mouse or tablet to indicate the direction of your text, a rubber-banding line goes from that point to the Cursor. When you **Select** a second point, the line that appears specifies the direction of the baseline of your text. If you start typing without specifying a second point, the text will be drawn according to the rotation value selected on the Text Menu.

> ***NOTE**: Only the direction of this baseline is important. Press the RETURN or ENTER key when you want to enter another line of text. The Text Cursor will jump to next line and will proceed in the same direction.*

Clear Function

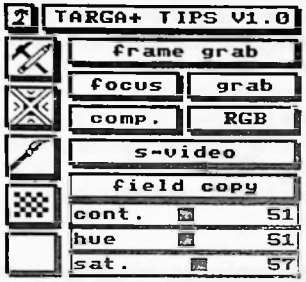
Clear Submenu

Select the Clear function when you want the current painting cleared from the Canvas. The Canvas is cleared to the Current Background Color. The Background Color is the first entry in the Working Palette.

You are prompted to verify that you actually intend to clear the screen. This is a safeguard against accidentally selecting the Clear Screen function and destroying your picture without saving it

If you wish to clear the Canvas, **Select** the "YES" frame. If not, **Select** NO.

Grab Function



Grab Submenu

The Grab function lets you capture digitized images on your Canvas. Only use the Grab function when your computer is connected to a video source such as a color video camera or VCR. When Grab is selected, a submenu appears that offers two methods for getting a video image: Focus and Grab. It also lets you adjust the Contrast, Hue, and Saturation of a live composite video image.

Selecting the Focus frame allows you to see the live video image so that you can focus your camera. You may focus your camera, position your subject, or adjust your input device until you press **Select**. This action copies the picture on the screen into the Canvas. When you press **Cancel** the Canvas will contain the picture that was on the screen prior to selecting the focus function.

If you **Select** Grab instead of Focus, the TARGA+ will immediately capture a new image from your video input device. No time will be given to focus, to position your subject, or to adjust your input device.

When you grab an image of a rapidly moving object, you sometimes get a blurred effect. To minimize the blur you see, **Select** the field copy frame. When this frame is highlighted, you will see the process whereby the scan lines that make up your image are blended to minimize the blur.

The RGB, S-Video, and Comp frames allow you to use either the RGB input, the S-Video input, or the composite video input connected to your TARGA+. To **Select** RGB input, move the Cursor on the RGB frame and press **Select**. Move the Cursor to the Comp frame and press **Select** for composite video input.

Once you capture a picture using either Focus or Grab, that picture becomes your Canvas. The slide bars have no effect because they only affect the live video image.

When you **Select** any of the Live functions while the Video special effect is also selected, two things are important to note:

1. The live video signal may be overlaid by graphics from your Canvas. To make the entire screen live, **Select** the Set Screen frame in the Video Submenu.

2. If your image is partially covered by graphics from your Canvas, only the portions of the screen that were "live" will change in the Canvas when you capture an image. The Canvas will look exactly the same after your grab.

Composite Video Input Only:

There are three slide bars in Grab Frame that allow you to adjust the contrast, hue, and saturation of a composite video input before "capturing" it using Focus and Grab. **Select** Contrast to adjust the contrast of the live video image. Use Hue to adjust the color of the image. Saturation lets you set the amount of color versus black and white in the video image. These controls only affect the Composite Video Input and have no effect on the RGB or S-Video input.

Adjust a slide bar by putting your Cursor on it and holding down **Select**. The submenu will clear. Continue holding down **Select** while you move the Cursor horizontally back and forth until the Contrast, Hue, or Saturation looks good, then release **Select**. The Grab submenu will reappear. If you want to set a slide bar to a certain percentage, put your Cursor on the slide bar where that number should be and press **Select** once. The submenu will clear and then will return. Repeat the process until the percentage is correct.

1. Connect a video source to the TARGA+ in your computer.

2. Go to the Function Menu and **Select** Grab. The Grab submenu appears.

3. **Select** Focus. You then see the live video image on your screen. Press **Cancel** to return to the Grab submenu.

   When you return to the Grab submenu, the live video input stops and your Canvas reappears behind the submenu. (If you had pressed **Select** before pressing **Cancel**, you would have "grabbed" a digitized image and it would become your Canvas.)

4. Put your Cursor on the Contrast slide bar. Press and hold **Select**. The submenu will clear. Move the Cursor horizontally back and forth. You see the contrast of the live video image change. Release **Select** when you like the contrast. The Grab submenu reappears.

5. Now, put your Cursor on the Hue slide bar and press and hold **Select**. Adjust the hue of the image in the same way you adjusted the contrast in Step 4. When you release **Select**, the Grab submenu reappears.

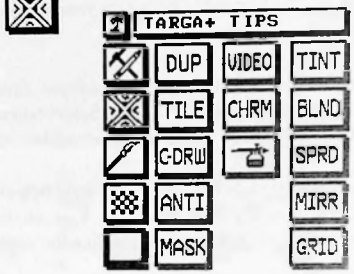
6. **Select** the Saturation slide bar and adjust the saturation of the live video image as you did the contrast and hue. When you release **Select**, the Grab submenu reappears.

7. Now, **Select** Focus again. The submenu clears and you see the live video image on your screen. When you see the image that you want, press **Select**. The live image is captured to the Canvas although the screen is still live. You change the Canvas each time that you press **Select**.

8. Press **Cancel** to return to the Grab submenu. Press **Cancel** with your Cursor on the submenu to return to the Function Menu. Or press **Cancel** with your Cursor on the Canvas to draw with the currently selected features.

You can now choose any of the Demo TIPS features to modify the image which you have captured on your Canvas.

The Special Effect Menu



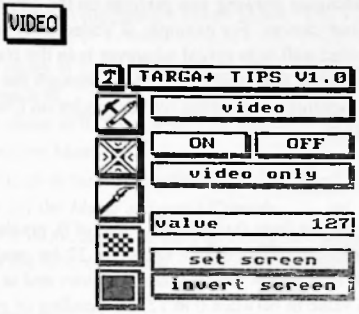
Special Effect Menu

The Special Effect Menu provides you with special effects to enhance many Demo TIPS operations and to create sophisticated graphics easily.

Move the Cursor to the Special Effect Menu icon in any of the menus and press Select.

To **Select** an effect from the Special Effect Menu, move the Cursor to the frame containing the icon for the effect and press **Select**. The only special effect available in Demo TIPS is Video.

Video Function



Video Submenu

The Video effect allows you to overlay graphics and text on top of the live image from your video source. You can couple this special effect with the different functions and with the other effects to create some interesting video effects. Each pixel in the Canvas may be either live (i.e., you see the video source) or from memory (i.e., the color that you have drawn on your Canvas.) Using the procedures that follow, you will be able to specify which portion of the Canvas is live and which shows the pixel values that you have drawn to the Canvas.

Although it is not necessary to understand how the TARGA+ overlays your graphics on the video source, a little background will help you remember the names used for the frames in the Video Submenu.

ON and OFF

The ON and OFF frames function exactly as indicated. When you **Select** the ON frame, video overlay is enabled. When you **Select** the OFF frame, video overlay is disabled.

Video Only

When you **Select** Video Only, whatever drawing you perform on the screen will affect live video only and does not effect your canvas. For example, if Video Only is highlighted, drawing red rectangles on live video will only reveal whatever is in the frame buffer. If you had an image loaded or a blank canvas, that is what will show through the rectangular areas you drew. If Video Only is not highlighted, drawing red rectangles on live video *will* result in red rectangles over the live video.

Value Slider

In 16 bit mode, the value slider moves from 0 to 1. At a value of 0, pixels are shown as graphics, and at a value of 1, pixels are shown as live video. In 32-bit mode, the value slider moves from 0 to 127. At a value of 0, pixels are shown as graphics and at a value of 127 pixels are completely live. At a value in between 0 to 127, a blending of graphics and live video takes place producing "transparent" pixels.

IMPORTANT: Whenever you want to draw graphics over live video, move your slider to 0 before drawing.

Set Screen

The Set Screen frame clears the screen to the value indicated on the slider. In 16 bit mode, a value of 0 is graphics and a value of 1 is live video. In 32-bit mode, a value of 0 is also graphics and a value of 127 is live video. An intermediate value between 0 and 127 will be some combination of graphics and live video.

Invert Screen

The Invert Screen frame inverts whatever is on your display. For instance, if you have live video, Selecting Invert will now display graphics. If you have certain portions of your screen as graphics and other areas as live video, these areas will be reversed.

Following are two procedures for using video overlay - one procedure is used when you are displaying at 16 bits per pixel, the other procedure is used when displaying at 32 bits per pixel.

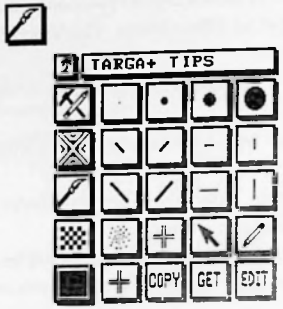
Procedure - 16 bit mode:

1. Clear the Canvas using the Clear (Thumbs Down) function in the Function Menu.
2. **Select** the Video frame in the Special Effect Menu. The Video Submenu appears. Turn Video ON.
3. Place your value slider at 1 and **Select** the Set Screen frame in this submenu. The entire screen will become live.
4. Place your value slider at 0. Then **Select** the Function Menu icon in the upper left corner to access the Function Menu.
5. **Select** the Circle icon in this menu. **Select** the Filled and Center Attributes.
6. Move the Cursor off the Menu and press **Cancel**.
7. Draw a large circle in the center of the Canvas. There should be a large circle over your live video. Press the Invert Screen to reverse the graphics area and the live video area.

Procedure - 32 bit mode:

1. Clear the Canvas using the Clear (Thumbs Down) function in the Function Menu and **Select** the Video frame in the Special Effect Menu. The Video Submenu appears. Turn Video ON.
2. Place your value slider at 127 and **Select** the Set Screen frame in this submenu. The entire screen will become live.
3. Place your value slider at 60. Then **Select** the Function Menu icon in the upper left corner to access the Function Menu.
4. **Select** the Circle icon in this menu. **Select** the Filled and Radius Attributes. Move the Cursor off the Menu and press **Cancel**.
5. Draw a large circle in the center of the Canvas. There should be a large transparent circle over your live video.
6. Press **Cancel**. **Select** Video in the Special Effect Menu. Press the Invert Screen to reverse the graphics area and the live video area.
7. If you set your value slider at various values before drawing more circles, you will see the transparency of your circles change.
8. **Select** Video Only. Place your value slider at 127 and **Select** the Set Screen frame to fill the entire screen with live video.
9. Place your value slider at 0 and draw some circles on the screen. The circles will cut away the live video and reveal whatever is on your canvas.

Brush Function



Brush Submenu

The Brush Menu contains sixteen "ready-made" brushes and the Cursor brush. The Brush Menu also has Copy, Get, and Edit features that allow you to change brushes and design new ones. The current brush is highlighted in the Main Menu and the Brush Menu. Each brush in the Brush Menu paints with its own image with the sole exception of the Cursor Brush that paints as a single pixel.

Cursor Brush

The Cursor Brush always draws with a single pixel and has a cross-hair design to help you place pixels more accurately. You can use Copy, Get, and Edit to make the Cursor Brush into any shape you want. That shape then appears as the Cursor on your Canvas but it still draws using only one pixel. The Cursor Brush is the default Cursor whenever you are in a drawing function. You will see it when you are making menu selections and when using special effects and functions. **Note:** There is also a brush shaped exactly like the cursor that draws in the actual shape of a cross hair.

Copy

Use Copy to copy the currently highlighted brush to another icon on the Brush Menu. Use this function when you want to edit a brush but you want to keep the original unedited.

1. First, put your Cursor on the brush you want to copy and press **Select**. The brush highlights.

2. Then **Select** Copy. The Copy frame highlights.

3. Put your Cursor on the brush icon that you want to replace and press **Select**. The highlighted brush is copied to the new icon. The new icon becomes highlighted.

Copy is particularly useful when you want to make a regular brush into a Cursor Brush. Any brush that you copy into the Cursor brush frame becomes the Cursor brush and draws with one pixel.

Get

Get lets you pick a 16 by 16 pixel area from your screen and makes it a brush. It replaces the currently highlighted brush and appears on the Brush Edit Submenu. Get only works effectively if the pattern is a combination of the background color and other colors. When you use Get, all colors in the framed area that you **Select** are changed to black on the Brush Menu except the Background Color. Remember, the Background Color is the first entry in the Working Palette.

1. **Select** Get in the Brush Menu. The Cursor changes into a 16 pixel by 16 pixel Get frame.
2. Put the frame over the area you want for a brush and press **Select**. For now, **Select** the Function Menu icon as your new brush. The new brush replaces the previously highlighted brush and also appears on the Brush Edit Submenu.
3. Put your Cursor on the Canvas and press **Cancel**. Draw with the new brush.

Background Color

The background color in Demo TIPS is the first color (top left) on the Working Palette. When you use clear in the Function Menu, your Canvas clears to that color.
Brushes can only be a combination of the background color and black. When you use Get, all colors other than the background color are changed to black on the Brush Menu. The Erase feature in Brush Edit lets you change pixels to the background color. You can use any pattern for a brush that contains some background color. The size of a brush is always 16 by 16 pixel square.

Edit

The Brush Edit feature lets you alter the currently highlighted brush or design a new one to replace it. **Select** the Edit frame to access the Brush Edit Submenu.
The brush is magnified in the large box and shown in actual size in the box to its right. You create a new brush by editing the magnified version.
To edit the brush, put your Cursor on a pixel in the magnified brush and press **Select**. That pixel becomes black. (See below for erasing pixels).

As you make changes to the magnified brush, you see the actual size brush change. This lets you see what the new brush will look like.

Shifting a Brush

The frame with the four arrow markers lets you move the brush up, down, left, and right. Put your Cursor on one of the arrow markers and press **Select** to shift the brush. The brush continues to shift as long as you press **Select**. Note that the entire brush moves a row or column of pixels at a time in the direction of the marker. As you shift the brush, rows or columns of pixels are shifted out of one side and reappear at the other side of the brush.

Draw/Erase

The frame with the pencil icon represents Draw and Erase. It can be toggled between Draw and Erase by selecting the frame. In the default Draw mode, the pencil tip is down in the icon and you can add black pixels to the brush. In Erase mode, the eraser end of the pencil is down and you "take away pixels" from the brush. (i.e., you change pixels to the background color).

1. **Select** some background color pixels in the magnified brush. They are changed to black.
2. Put your Cursor on the Draw frame and press **Select** to change it to Erase. The Erase icon replaces the Draw icon in the frame.
3. **Select** some black pixels in the magnified brush to see the effects of Erase.
4. **Select** the Erase frame to change back to Draw.

Fill

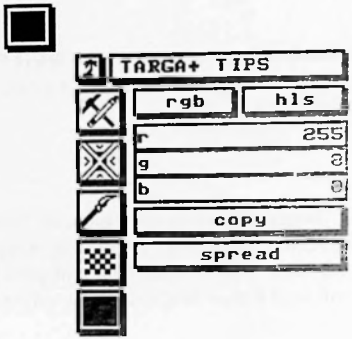
Select Fill to change the entire brush area to one color. If you **Select** Fill when Draw is active (i.e., Pencil Tip down), the brush icon is filled with black pixels. Fill with Erase fills the brush icon with the background color.

Hot

In the magnified editing frame, you see one pink pixel. This is the "hot" pixel. This pixel indicates the one-pixel drawing point of your Cursor Brush. For example, if you edit the Cursor Brush to create a pointing hand, use Hot to place the pink pixel at the tip of the index finger. When you draw, you will see a Cursor hand that draws with one pixel at the tip of the index finger.

To move the hot pixel, **Select** Hot. Then put your Cursor on any pixel in the magnified pattern. Press **Select** to move the hot pixel to that position.

Color Function



Color Submenu

All color mixing and palette manipulation occurs on the Color Menu. This important menu is invoked by selecting the current color box that appears in the lower left corner of every menu.

The Working Palette

The Working Palette consists of 256 colors that you can use while working on images. These colors are displayed at the bottom of every menu. The Working Palette consists of four rows of 64 colors. Choose a color by putting your cursor on it and pressing **Select**. That color becomes the Current Color and fills the color Menu icon frame. Selecting a color from the canvas: While a menu is present, you may **Select** a color from the canvas by positioning the cursor on the color that you want and pressing **Select**.

Changing a Working Palette

You can change your Working Palette by substituting colors from the full palette. An easy way to accomplish this is to copy a new color to the Working Palette. The new color can be selected from the canvas or mixed from scratch using the Demo TIPS RGB color mixing scheme. Another way to get new colors onto the Working Palette is by using the spread function in the color submenu. When you change a color in a location in the Working Palette, you also change every pixel in the canvas that was that color.

Copy a Color

Use Copy to add the current color to the Working Palette. You can also copy a color to a new position to create a particular spread. Simply create a new color using the slide bars, press the Copy frame, and select a color chip in the Working Palette to be replaced with this new color.

Spread a Range of Colors

This feature allows you to set up a color spread between any two colors on the Working Palette. For example, if you set one end of the color spread to be white and the other end red, Demo TIPS will change the color palette entries between the two end points to shades of pink and red.

1. **Select** a dark blue from the Working Palette and copy it to the beginning of one of the rows of colors.
2. **Select** a white and copy it to the middle of the same row.
3. **Select** the Spread frame. **Select** the dark blue color and the white color. Demo TIPS automatically gives you all the available shades of blue that fit between your two colors.

Color Mixing

Demo TIPS provides a Red, Green, and Blue mixing scheme. The RGB frame is selected by default on the color menu. The slide bars on the menu are labeled R, G, and B and each shows a value between 0 and 255. Each color in the full palette is a combination of these RGB values. The RGB values for the current color appear on the slide bars.

Note: If you mix a specific color that you like and want to reuse, you can recreate it by noting its RGB values and setting the slide bars to those values.

Follow this method to change the slide bar settings on the color menu: **Select** and hold a slide bar and move the mouse or tablet pen horizontally until the color or the number value is what you desire. Press **Select** to set the marker in the new position.

Background color

To select a new background color:

1. Press **Cancel** to bring up the Main Menu.

2. **Select** the Current Color frame located in the lower left corner of the Main Menu. The Color Menu appears.

3. Move the Cursor to a red color in the Working Palette and press **Select**.

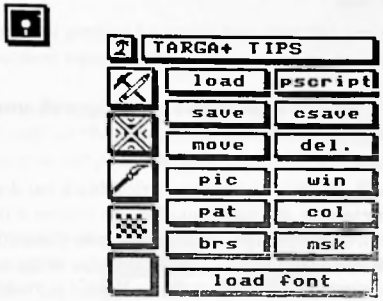
4. **Select** Copy in the Color Menu.

5. Move the Cursor to the first color chip in the upper left corner of the Working Palette and press **Select**.

6. Go to the Clear menu and clear the screen. The background becomes red.

7. Press **Cancel** to return to the Main Menu.

Storage Function



All of the file operations for Demo TIPS use the Storage Menu. The Storage Menu can be accessed only from the Main Menu where it is represented by the disk icon.

Select the disk icon to access the Storage Menu. When you use this menu, you must **Select** a file operation and file type to operate on. There are three file operations:

Load - To load a file from disk.
Save - To create a file and store it on the disk.
CSave - To create a compressed TARGA+ file and store it on the disk.

These three file operations can be used with two file types:

Picture - Contains a full-screen TARGA+ image.
Window - Contains a TARGA+ image that only fills part of the screen.

File Submenus

To perform a file operation, you first **Select** your file operation (i.e., Load, Save, CSave) in the Storage Menu and then **Select** the type of file. After you **Select** the file type, a submenu appears with an alphabetical list of files.

This file submenu is the same for all the File operations and is automatically updated after you rename, delete, and create files.

Scroll Bar

To the right of the list of files in the Files submenu is a Scroll Bar with arrows at the top and bottom that let you scroll through the list of files.

If there are more files than can fit on the submenu, the vertical black bar does not fill the space between the arrows. For example, the bar is cut off at the bottom if there are more files at the bottom of the list than shown on the submenu. Put your Cursor on the down arrow and press **Select** to scroll down the file list. Scroll up the list in the same manner with the up arrow. Or put the Cursor on the vertical black bar and press and hold **Select** while you move the Cursor. The list will scroll as you move the vertical black bar up and down. Release **Select** to freeze the list.

If the black bar fills the Scroll Bar, all the files are visible and the scroll arrows will not function. There are two different ways to **Select** a file from the submenu:

1. Use the Scroll Bar to locate the file name. Put your Cursor on the filename and press **Select**.
2. Type in the filename from the keyboard. What you type appears in the box at the bottom of the submenu. Use the Backspace Key to make corrections. When you finish typing the correct filename, press the RETURN or ENTER key.

Filenames

Filenames can be up to eight characters long. (See the DOS manual for information on filenames.) There is room on the submenus to type 10 characters so that you can add a disk source or destination (i.e., A:, B:, C:, or D:) to the beginning of your filename. When you save a file, Demo TIPS automatically appends a two/three-letter suffix to each filename to indicate it is a Demo TIPS file. The file type suffixes are:

- TGA: TARGA file format picture files
- WIN: Windows

You do not have to add the file type suffix when you store or retrieve images. Demo TIPS adds these suffixes automatically.

Error Messages

There are several kinds of error and warning messages that you may see as you use the Storage Menu. You must respond to the error or warning message before you continue.

The responses to these messages differ depending on the type. If you see an error message such as "File not Found" or "Window not Removed", you must move the Cursor over the actual error message box and press **Select**. Demo TIPS will wait until you do this before continuing.

A warning or confirmation message such as "Touch to Delete" or Touch: 15 Pt. Gothic Font" requires your selecting the actual warning message box if you want to proceed with the action. Pressing **Select** or **Cancel** anywhere else on the Canvas will **Cancel** the action and return to the Storage Menu.

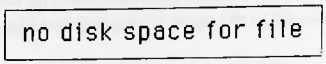
File Operations

Save

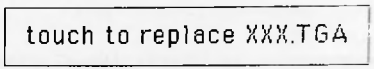
Use Save to store a Picture or Window on your disk. Make sure there is enough space on your disk. In the example below, a picture is saved.

1. Go to the Storage Menu. Put your Cursor on the Save frame and press **Select**. The Save frame becomes highlighted.
2. Put your Cursor on Pic and press **Select**. The Storage Menu clears and the Save Picture Submenu appears.
3. Type in a filename for the picture you want to Save. (Put "A:", or "B:" before the filename if you are saving to a floppy disk.) Press the RETURN key.
4. The picture filename you just entered is automatically inserted in alphabetical order in the file list. The Storage Menu reappears.

If there is not enough room on the hard or floppy disk where you are saving a file the error message:



will appear. You must **Select** this message box to continue. If you try to save a file whose name already exists, you will get the warning message:



You must **Select** this message before continuing. Pressing Select or Cancel anywhere else on the screen will stop the save operation.

CSave

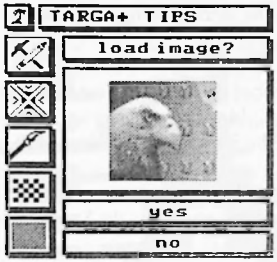
Use CSave to store pictures and windows on your disk in a compressed format. The procedure for selecting the output file name is identical to that used with Save.

The CSave function saves your image in a compressed data format. This function greatly reduces the storage requirements for images containing graphics and text but has minimal effect on captured images.

Load

You can load any Picture or Window file that has been saved in the TGA file format.

1. **Select** Load in the Storage Menu. The Load frame highlights.
2. Now **Select** Pic. The Storage Menu is replaced by the Load Picture Submenu.
3. Find the file you want to load on the alphabetical list. Put your Cursor on the filename and press **Select**. Or enter the filename from the keyboard and press the RETURN or ENTER key.



A submenu appears with a postage size version of the image (if it is an extended TGA file format image) with the question "Load Image?"

If the answer is YES, **Select** the YES frame. If the answer is NO, **Select** the NO frame. If it is not an extended TGA file format image, a pink message box appears instead which you will click on to proceed. The submenu clears and the file loads. In this case, the picture appears on your screen and the Storage Menu reappears.

Window is a special feature of the Storage Menu that allows you to save a part of the Canvas. You can then use this Window in other pictures. After you load a window, it appears in a frame like the frame used for Framed Move and you can then manipulate and place the Window before "pasting" in place.

Saving and loading is more complicated for Windows than for other types of files.

To Save a Window:

1. **Select** Save and Win in the Storage Menu. The menu clears and you see the Canvas and the Cursor.

2. Press **Select** at one corner of the area you want to save as a window. A rubber-banding window appears. Move your Cursor until the window is the correct size and then press **Select**. The Save Window Submenu appears on your screen.

3. Type in a filename for the Window and press the RETURN or ENTER key. The Window is saved and you are returned to the Storage Menu.

To Load a Window:

1. First, load a picture to which you want to add a window.

2. **Select** Load and Win in the Storage Menu. The Storage Menu clears and the Load Window Submenu appears. **Select** the Window filename or type it and press RETURN or ENTER.

   The submenu clears and the Window appears superimposed on your Canvas. It is framed like an area in Framed Move. The same attribute icons appear around the frame as you move the Cursor around the frame.

3. **Select** the Framed Window attributes to alter and move the Window. Then use the Paste attribute (in lower left corner of the frame) to make it part of your Canvas. If you press **Cancel** before you press Paste, the Window disappears. (However, it is still on file in the Storage Menu.) The Storage Menu reappears.

Framed Window Attributes

When you load a Window, it appears in a frame like you use with the Framed Move function. Using the copy frame icons, you can manipulate the image before you paint it on the Canvas. The features are Regular Move, Paint Move, Proportional Shrink or Enlarge, Rotate, Transparent, Flip Horizontally and Vertically, Stretch, and Paste.

If you do not have an Expanded Memory Board, you see a simple copy frame that you can paste on the screen if the window is larger than about one-fifth of the screen.

Please refer to the Move Menu for detailed information on Framed Move attributes.

Example: (To copy a figure from one image to another image using the Transparent attribute.) Suppose you have an image of a red circle on a green background and you want to copy the circle and place it in another image. If you simply save the circle as a window, your window will contain not only the red circle but also the green area surrounding it. The Transparent attribute in windows allows you to get rid of this unnecessary background. (Generally, all figures to be placed in other images should be created with a black (RGB 0.0.0) background.)

1. Draw a red circle on a green background. Then, make the black color (RGB 0.0.0) your Current Color. Use it with the Draw function to cover the area that immediately surrounds the red circle. Whatever area is black will become transparent when the window is placed. This area will remain black until you load the saved window on the new Canvas and Select the Transparent attribute.

2. Go to the Storage Menu and Select Save and Win. The Storage Menu clears and you see the Cursor and cross-hairs on your Canvas.

3. Define the window to surround your circle by pressing Select at two diagonal corners of the window. The Save Window Submenu appears. Type in a filename for the window and press RETURN. The Storage Menu reappears.

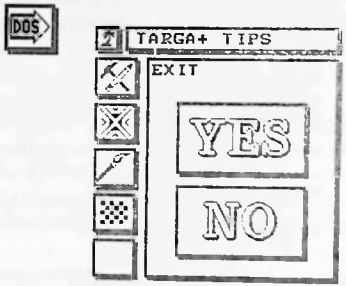
4. Now, create a blue filled rectangle that completely covers your screen. Pretend this is another image to which you want to add your circle.

5. Then, **Select** Load and Win from the Storage Menu. When the Load Window Submenu appears, **Select** the filename. The submenu clears and you see your Window superimposed on the picture.

6. **Select** the Transparent attribute on the bottom edge of the frame that surrounds the window. All of the areas that you made black (RGB 0,0,0) in Step 1 become transparent. The Window should contain only the red circle with a background of the current Canvas.

7. Use any of the other Framed Window attributes to alter and place your window. Be sure to **Select** the Paste or Paint attribute to paint the window to the Canvas. Press **Cancel** to return to the Storage Menu.

Exit to DOS Function



Exit Submenu

Select the Exit to DOS icon to end a Demo TIPS session and to return to DOS. After you **Select** the DOS icon, a submenu appears that prompts you to verify that you really want to exit. This is a safeguard against accidentally quitting without first saving the current image on your screen.

To exit from Demo TIPS, **Select** "YES" on the submenu. To return to the Demo TIPS main menu, **Select** "NO" or press **Cancel**.

TROUBLESHOOTING - DEMO TIPS

Sometimes hardware, software, and even people make mistakes or get confused. The following section contains a list of conditions that you might encounter while using TARGA+ Demo TIPS. If you have a problem, look for it in this section and follow the suggestions.

Problem: No Video. You run the Demo TIPS software and nothing appears on your RGB analog or composite monitor screen.

1. Make sure the video monitor has been turned on and the cables to the monitor have not come loose.
2. Check the TARGA+ User's Guide for proper installation. Carefully check the cables to your video monitor and the seating of the TARGA+ in your computer. Make sure the TARGA+ DOS Driver is installed and that you have set the desired resolution.
3. Check the TARGA+ User's Guide for possible TARGA+ address and jumper changes. The TARGA+ can be moved in the computer's memory to avoid conflicts with other boards.
4. Verify that the monitor is in the correct display mode. If you have another video source (e.g., a camera, ICB, VDA, or VDA/D), check your monitor and cabling by verifying that it works with the other source.

Problem: The Demo TIPS menu is not visible, or is translucent.

1. When the last application exited, your TARGA+ may have been left in a "blended" mode so that you may or may not see the Demo TIPS menu. Rerun the TARGA+ Setup Software that configures your display resolution.

Problem: Video appears on the screen but the Cursor does not respond to the mouse and/or the graphics tablet.

1. Verify that Demo TIPS is working by moving the Cursor and popping up menus using your keyboard. Move the Cursor using the arrow keys located on the right side of your keyboard. Press Alt when you are instructed to "Press **Select**" and "Escape" for **Cancel**.

2. The most common cause of this is forgetting to install the mouse or graphics tablet driver. Remember, the mouse and graphics tablet must be installed each time your computer is powered up or DOS is initialized. Refer to the instructions that come with the mouse or tablet for proper installation.

3. Check the installation of the mouse or graphics tablet hardware. Your mouse may become unplugged from its connection. The power pack for the Summagraphics tablet must be plugged into a working 120 volt outlet. Check to make sure that this outlet is live by plugging in another piece of hardware and turning it ON.

4. If you are using both a mouse and a graphics tablet, keep the stylus away from the surface of the pad when not in use. It will fight the Mouse for control and no action will occur.

5. The graphics tablet drivers provided with Demo TIPS default to Comm. Port 1. If you want to use Comm. Port 2 instead of Comm. Port 1, specify the "/COM2" option on the command line where you install the tablet driver.

Make sure you are using the Serial Port and not the Parallel port (check the manual that came with your computer or your communications adapter board). Then make sure the serial port is configured for the setting you selected when you installed the tablet driver.

Problem: You get "ghosts" (unusual patterns) or bad pixels on the screen, or the area under the menus is not being restored.

1. The TARGA+ may be having a possible memory conflict with another board in the computer. Consider any board that is not "standard" on the computer as a candidate for having a memory conflict. Test each of these by removing them one at a time to see if the ghosts go away.

2. This problem can also occur if you do not exit your Truevision programs properly. You must exit properly to allow the programs to deselect the display memory when they terminate. In this case, power down your computer, turn it on, and load Demo TIPS again.

BASIC TERMINOLOGY - DEMO TIPS

ALT KEY - This key is used to make menu selections and to specify the location of points when using certain figure drawing functions. If you use your keyboard as the input device, press the ALT key when you read that you should "press **Select**."

BACKUP - A backup is a copy of your data and/or program disk that can be used in case of disk or computer failure. We strongly recommend that you create a backup of the Demo TIPS disks.

BARREL SWITCH -The spring loaded switch on the side of the Summagraphics graphics tablet stylus that you press when you want to **Cancel** in the middle of using a function, to clear a menu from the Canvas, or return to a previous menu from a submenu.

BIT PAD - See Tablet.

CANCEL - See "Barrel Switch," "Right Mouse Button," or "Escape Key."

CANVAS - The Canvas is your drawing or painting area. The default mode set by the TARGA+ DOS Driver contains 400 rows that each contain 512 pixels at 16 bits per pixel.

CURSOR - The Cursor is the figure (arrow-shaped, cross-shaped, square-shaped, custom shaped, or brush-shaped depending on the function you are working with) that moves about the Canvas as you move the input device (or press the keyboard arrow keys). The Cursor indicates your current drawing position on the Canvas or selection position on any of the menus.

DEFAULT - A selection that Demo TIPS makes or condition that Demo TIPS assumes in the absence of a selection made or condition specified by the user.

DOS - Disk Operating System. It enables your Demo TIPS program to communicate with the outside world through the display, keyboard, printer, and other peripheral equipment.

ENTER KEY - Also named the RETURN key.

ERROR MESSAGES - Error messages appear when you have done something Demo TIPS does not understand. They also warn that a software or hardware problem has occurred.

ESCAPE KEY - Press this keyboard key when you want to **Cancel** in the middle of using a function, to clear a menu from the Canvas, or to return to a previous menu from a submenu. If you are using the keyboard as an input device, press the Escape key when you are told to "Press **Cancel**."

FRAME - The icons on the menus representing the various functions and features that Demo TIPS can perform are enclosed in frames. The term "frame" also refers to the shape that the Cursor takes while executing specific Drawing functions.

FULL PALETTE - The full Palette is the entire selection of colors that can be created and displayed by the TARGA+. In 16-bit mode, the full Palette is 32,768 colors. In 32-bit mode, the Full Palette is 16 million colors.

LEFT MOUSE BUTTON - This button is used to make menu selections and to specify the location of points when using certain figure drawing functions. If using a Mouse as an input device, when you read that you are to "Press Select," press the left Mouse button and release it.

MENU - A menu represents a list of functions or tasks from which you can choose. Demo TIPS has three levels of menus; the Main menu represents the first level from which you may **Select** other submenus.

MOUSE - A Mouse is an input device that you use to control Cursor movement and to give instructions to Demo TIPS.

PIXEL - Short for the term Picture Element. A pixel represents the smallest area of the Canvas that can be changed to a different color. The Demo TIPS default Canvas set by the TARGA+ DOS driver is 512 horizontal by 400 vertical pixels size at 16 bits per pixel.

RETURN KEY - Also known as the ENTER key.

RIGHT MOUSE BUTTON - Use this button whenever you want to **Cancel** drawing in the middle of a function or want to clear a menu from the Canvas. When you read that you are to "Press **Cancel**," it means that you are to press the right Mouse button.

RUBBER-BANDING - When drawing a figure, Demo TIPS provides an outline version of the figure which can be manipulated for size. You can change the dimensions of the figure at will during the drawing process because of this 'rubber banding' feature. The rubber-banding effect allows you to specify a figure's dimensions and to see immediately the results of your specifications before deciding whether or not to make the figure you see a permanent part of your picture.

SELECT - See "Tip Switch", " Left Mouse Button," or "Return Key."

STYLUS - This is the pen-shaped graphics tablet attachment used to control Cursor movement.

TABLET - The tablet is a graphics device to which the Stylus is attached. The position of the Stylus on the surface of the tablet corresponds to the position of the Cursor on the Demo TIPS Canvas.

TIP SWITCH - This is the spring-loaded switch at the tip of your stylus (pen) that you press on the tablet to make menu selections and to specify the location of points when using certain figure drawing functions. When you read that you are to "Press **Select**," it means that you are to press the tip of the stylus against the graphics tablet.

If you are using a Bit Pad One compatible graphics tablet, move the stylus to the bottom of the tablet and press the stylus on the tablet when you are instructed to "Press **Cancel**."

TITLE BAR - The rectangular frame at the top of each Demo TIPS menu. The Title Bar allows you to reposition any of the Demo TIPS menus.

WORKING PALETTE - 256 colors that are displayed along the bottom of each Demo TIPS menu. The Working Palette is a selection of 256 colors from the FULL PALETTE of 32,768 colors in 16-bit mode, or 16 million colors in 32-bit mode.

This page intentionally left blank.

Chapter 9 - TARGA+ Control Panel for Windows™

INTRODUCTION - CONTROL PANEL

The Control Panel gives you access to the numerous features of the TARGA+ from within any other Windows application. The Control Panel can be opened to adjust the various parameters of the TARGA+. Then, when you are ready to invoke a particular function (i.e. chromakeying or blending), you simply invoke a set of keys on the PC keyboard permitting access even when the Control Panel is not the currently active Windows application.

Note: If you are using multiple TARGA+ boards in your system, Microsoft Windows and the Control Panel should be used on the first TARGA+ board in your PC. This first TARGA+ board is designated as board 0.

Note: The display configuration of the TARGA+ cannot be changed while you are running Windows. You must exit Windows, and use either TCONFIG or TMODE to alter your display.

Note: The use of TMODES 1 - 4 is not recommended for use with the TARGA+ Control Panel or the Capture Utility. These modes are available for backward compatibility with the Classic TARGA board.

Note: To use the TARGA+ Control Panel or the Capture Utility, you must have the TARGA+ Windows driver installed AND you must run Windows in either standard or enhanced mode.

Note: The TARGA+ Control Panel and the Capture Utility are not designed to work in conjunction with one another. You cannot, for instance, set up for chromakeying or blending on the Control Panel and then perform a capture. The TARGA+ Control Panel and the Capture Utility are independent applications.

The TARGA+ Control Panel is comprised of four sub-sections: VIDI/O, Blender, MasterKeys, and ChromaKeyer.

VIDI/O

The VIDI/O portion of the TARGA+ Control Panel allows you to select among the three possible video input types: Composite, S-Video, and RGB. In addition the hue, saturation, contrast, and brightness settings of the incoming signal are controllable, as well as the sub-carrier and horizontal phase of the outgoing video signal.

BLENDER

The Blender section allows you to incorporate special effects into your video productions because it allows you to control video overlay. A key color is chosen to indicate in which pixels of the image to show live video. Video can be shown in all the pixels matching the key color, and/or in all the pixels not matching the key color. The pixels showing video can be blended with graphics at any one of 256 levels of transparency.

Masterkeys

MasterKeys allows you to assign various functions of the TARGA+ to a key or combination of keys on the PC keyboard. By simply pressing the associated key or keys, the desired effect can be achieved.

Chromakeyer

The Chromakeyer is used to achieve professional level chromakeying over any application running on the TARGA+ under Windows. Chroma keying is the procedure of superimposing a live image (usually a person) over a still or animated computer-generated graphic. Whenever a blue pixel is detected in the live video source, the chromakeyer replaces it with the corresponding pixel in the computer-generated image. The effect is most often seen on nightly television weathercasts where the meteorologist appears to be standing in front of a weather map. In actuality, that person is standing in front of a blue screen.

HARDWARE AND SOFTWARE REQUIREMENTS

- If you are using multiple TARGA+ boards in your system, Microsoft Windows and the Control Panel should be used on the first TARGA+ board in the PC. This board is identified as board 0.

- To run the Control Panel on the TARGA+ board, the TARGA+ Windows driver must be installed. (See the README file available in the TPLUS\WIN3 directory of your TARGA+ Setup Software.)

- The file (WDINSTALL.EXE)that installs the TARGA+ Windows driver must be invoked from the DOS command line. This file cannot be run from within windows. Simply go to the TPLUS\WIN3 directory and run the file WDINSTALL.EXE.
- If your TARGA+ board is set at memory segment 0xD000, there may be a memory conflict problem. (The symptom of this problem is horizontal stripes on your display.) This problem is easily resolved by editing the system.ini file found in your Windows directory. Approximately 29 lines down is a line that reads:

  [386Enh]

  Immediately after this line insert the following line:

  emmexclude=d000-dfff

  Your file should now read:

  [386Enh]
  emmexclude=d000-dfff

- **The display configuration of the TARGA+ cannot be changed while you are running Windows. You must exit Windows, and use either TCONFIG or TMODE to alter your display.**

- TMODES 1 - 4 are not recommended for use with these programs. These modes are available for backward compatibility with the Classic TARGA board.

- You must run Windows in either standard or enhanced mode for these programs to work.

SOFTWARE INSTALLATION

The TARGA+ Control Panel and the Capture Utility are automatically placed in a default directory [...\TPLUS\WINAPP] when the TARGA+ Setup Software is installed.

The files included in this subdirectory are:

CNTLPAN.EXE
MASTKEY.DLL
CAPTURE.EXE
CAPTURE.HLP
TPDLL.DLL

The default path to these files is also automatically added to your AUTOEXEC.BAT file when the TARGA+ installation is run.

However, if you have chosen an alternate directory for your TARGA+ Setup Software, you **must add the new path to your AUTOEXEC.BAT file**. If you do not designate the appropriate path, the Control Panel and Capture applications will not be able to find the associated DLL files needed to run the applications.

STARTING THE TARGA+ CONTROL PANEL

To start the control panel from within Windows, click twice on the cntlpan.exe file in the TPLUS\WINAPP directory (default). The main screen of the control panel will appear.

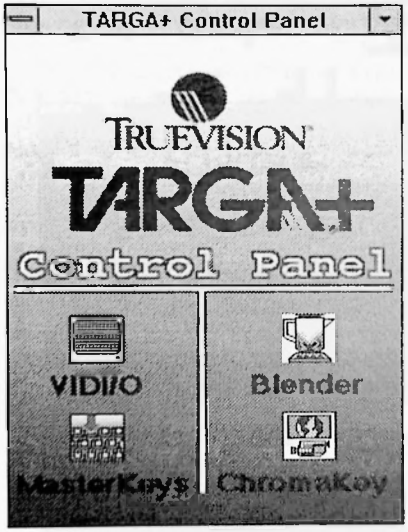
Both utilities run like any other Windows application. They can be assigned an icon and run from the icon, or they can be accessed through the file manager. Refer to your Microsoft Windows user manual for additional information on making an icon or accessing files.

CONTROL PANEL - MAIN SCREEN

The TARGA+ Control Panel main screen contains four buttons which are used to access the four sub-sections of the Control Panel. These buttons are labeled:

VIDI/O	**Blender**
MasterKeys	**ChromaKey**

In addition, the window contains the standard Windows buttons along the title bar for quitting the application in the upper left corner, and a sizing box on the upper right corner.



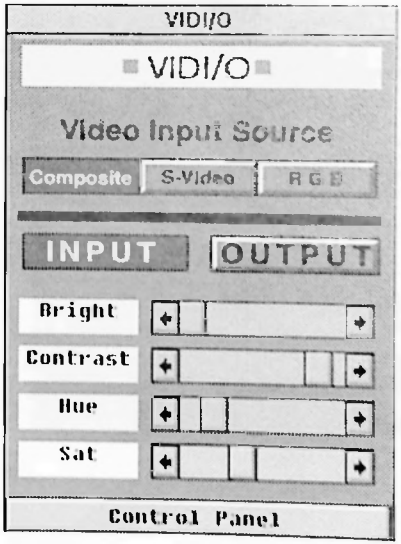
VIDI/O SECTION

To access the VIDI/O panel, click on the VIDI/O icon in the main TARGA+ Control Panel.

The VIDI/O portion of the Control Panel is separated into two sections: the **Video Input Source**, and the **Input-Output** section. (The Control Panel button at the bottom of the menu takes you back to the main menu.)

The Video Input Source Selector is composed of three buttons labeled Composite, S-Video and RGB. These buttons are mutually exclusive of one another (i.e., one and only one can be depressed at a time).

These buttons determine the type of video input being used by the TARGA+. In order to select one of the video inputs of the TARGA+, simply click the mouse over the button which corresponds to the desired input.



The currently selected input is indicated by the button with the flat appearance and the highlighted or yellow colored text. The buttons will always reflect the current state of the board. In other words, when you first start the VIDI/O Control Panel, the buttons will set themselves to show the type of input which is currently being used by the TARGA+.

If the source of your input is a VCR or commercial grade camera, then you will probably need to use the Composite setting. Higher quality devices may provide you with an S-Video or even RGB signal. Choose the appropriate type.

A Special Note About RGB Sources

If you intend to record the output from an RGB source, you must also connect to either the Composite or S-Video signal on your source device in order to access the subcarrier information needed for recording.

Most RGB cameras output an RGB as well as a Composite Video signal on the same connector. The TARGA+ uses the Composite Video signal (as do many other video products) as source of subcarrier information. However, certain RGB cameras output an RGB and Composite Video signal on separate connectors, and/or possibly output an S-Video signal to be used as a subcarrier source.

Certain adjustments must be made if this is the case, and you wish to get Composite or S-Video output from your TARGA+.

If your camera outputs a Composite or S-Video signal on a separate connector than the RGB signal, you will need a branching cable having S-Video and Composite Video connectors as well as RGB connectors.

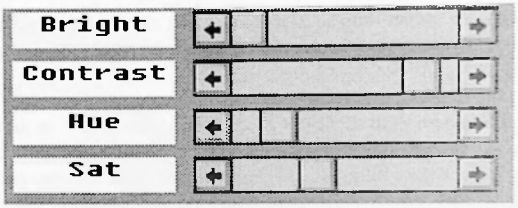
Connect the camera to the TARGA+ with both the RGB connectors and either the Composite or S-Video connector.

INPUT/OUTPUT SECTION

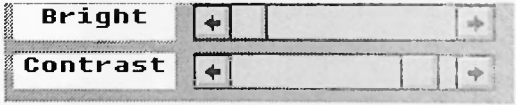
The Input/Output Section has options that allow adjustments to the video input signal. These controls affect the live video in much the same way that they do on a television set.

Input Button

If you are using a Composite or S-Video source, and press the INPUT button, you will see the following set of buttons on your submenu:



If you are using an RGB video source and press the INPUT button you will see only two sliders: brightness and contrast.



When you first click on any of the Input/Output sliders, the TARGA+ will go into live mode (if not already there) so that you can see the incoming video signal. (Use the key sequence CTRL + L to go live.) As you adjust the sliders, you should see the live video signal changing in response.

If you do not see live video on your TARGA+ screen, then check to make sure that the correct cables are connected to the TARGA+ input, and then check to make certain that the correct source is selected in the Input Selector section. For example, if you have S-Video selected in the Input Selector section and no source is connected to the S-Video input, you will see nothing but noise on the screen.

Brightness

The Brightness slider affects the amount of white in the entire image.

Contrast

The Contrast slider affects the amount of difference between the light and the dark areas in the image.

Hue

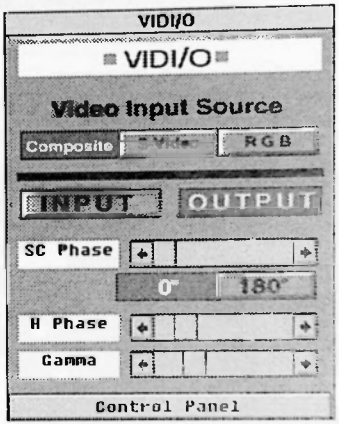
The Hue slider adjusts the color of the image and is available only on a Composite signal.

Saturation

Saturation controls the color intensity of the incoming video and is available only on a Composite signal. Highly saturated images appear "washed out."

Output Button

When you press the OUTPUT button, the following submenu appears:



This submenu allows you to make three adjustments to the output of the TARGA+. These adjustments are: Subcarrier Phase, Horizontal Phase, and Gamma. In many cases, changes to these parameters are made strictly by broadcast engineers in studio situations.

Subcarrier Phase

This slider adjusts the subcarrier phase in 3° (degree) increments. This is considered the Fine Phase adjustment.

The two buttons below the Subcarrier phase slider, which are labeled "0°" and "180°," are considered the Coarse Phase adjustment. Using both the fine and coarse phase adjustments, you can adjust the phase through an entire cycle.

Horizontal Phase

This slider allows you to adjust the horizontal phase in studio situations where cable compensation is needed.

Gamma Correction

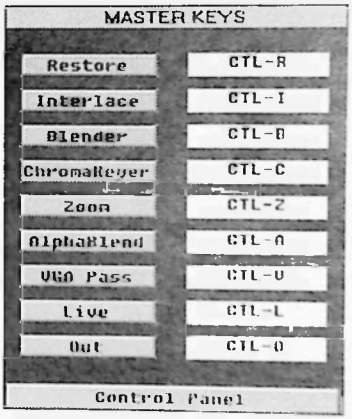
This slider allows you to correct the gamma of your outgoing signal. Gamma correction does not change the actual signal, it only changes the look of the display signal. It is used to match the display quality of monitors, cameras, and other video equipment to each other.

> *NOTE: If you're using Windows on the TARGA+ and live video is showing somewhere on the screen, then a mouse click on the live video area may bring up some windows that were available before you went live. The blue bottom portion of the TARGA+ Control Panel will appear underneath any any of these other windows. To retrieve the control panel, click on the blue portion.*

MASTERKEY SECTION

To access this panel, click on the icon labeled MasterKeys in the TARGA+ Control panel.

The MasterKeys Control Panel device allows you to assign some of the various features of the TARGA+ to particular keys or key combinations on the PC keyboard. Once the functions are assigned to keys using the MasterKeys device, the various functions can be invoked by simply typing the associated keys whenever the TARGA+ Control Panel is running. (The Control Panel button at the bottom of the menu takes you back to the main menu.) The default key settings are shown on the original menu. To change these settings, simply click on the name of the function you want to set and actually press the desired key sequence on your keyboard. These key sequences will then be associated with the function.



It is important to note that even though the Control Panel must be running for the MasterKeys to be active, it **does not** need to be the currently active application. For instance, you can be running a word processor and type the MasterKey for Zoom, and the entire TARGA+ screen will be zoomed. This means that the functions of the TARGA+ can be accessed from within any application running under windows. (Be sure you do not assign key sequences already used by another program.)

You can make the Control Panel an application icon so that its windows are not cluttering up the screen and MasterKeys will still be active. Keep in mind that the MasterKeys function controls activity on the TARGA+ screen only. If you are running an application on a VGA screen and the TARGA+ is an auxiliary device, the blending or chromakeying will not directly involve the currently active application unless that application specifically addresses the TARGA+ as a peripheral.

Restore

The Restore masterkey returns the TARGA+ screen to its start-up state (the state of the board when the Control Panel was first started). This eliminates any settings you might have made with other Control Panel devices or other applications which might have addressed the TARGA+ after the Control Panel was started. This key is the only one that does not toggle between a "before" and "after" state. **A restore is permanent. The Restore function is most often used when you have misconfigured your TARGA+ and need to get back to a "sane" configuration.** This is especially useful in a one-monitor situation when you have gone live and can't read the regular Windows screen or when running Windows from the TARGA+ driver.

The changes you make to the MasterKey assignments will be saved when you exit the program and will remain in effect even when you re-boot your PC. For example, if you change the Zoom masterkey to the CTRL key combined with the letter A key, that will remain the key combination until you use MasterKeys to change it to something else. For certain situations you may want to assign two or more functions to the same key or keys.

Interlace

The Interlace masterkey toggles between the non-interlaced display mode and the interlaced mode which is required for compatibility with video equipment (both input and output). Some resolutions of the TARGA+ do not function in both interlaced and non-interlaced modes. In these cases, pressing the Interlace masterkey will have no effect.

Blender

The Blender masterkey toggles the video overlay feature on and off. Those pixels which match the current key color (determined using the Blender Control Panel device) will be mixed with the specified amount of video when blend is invoked, and then will be returned to their normal state when the Blender masterkey is pressed again. Remember that the amount of video mixed with the key color pixels is determined by the position of the Key Color slider on the Blender Control Panel device. If this slider is all the way to the left, no video will be seen when the key is pressed.

Chromakeyer

When the Chromakeyer masterkey is pressed, the TARGA+ is toggled between Normal display and the Chromakey display as defined in the section on the Chromakey Control Panel device.

Zoom

When the Zoom masterkey is pressed, the image on the TARGA+ screen is zoomed by a factor of 2. The possible zoom factors are 2x, 4x and 8x. When the zoom has reached the maximum of 8, then it cycles back to normal display.

Alpha Blend

The AlphaBlend masterkey is used to implement a blend very similar to the blend provided by the Blender Control Panel device. Whereas the Blender blends pixels which are defined to have a certain color, the AlphaBlend feature permits blending on a pixel-by-pixel basis as defined by the alpha channel data for each pixel. This feature can be used with images whose alpha channels have been defined by imaging packages which work with alpha (or mask) channels.

The alpha channel is a name for the 8 bits not used in defining the color of a 32-bit pixel. In 32-bit color, 8 bits are used to define the red component, 8 bits are used to define the green component, and 8 bits are used to define the blue component. The remaining 8 bits are called the alpha channel and can be used for any of a number of different uses. The TARGA+ can use the alpha channel data to control the amount of blend between the graphic in the frame buffer and the incoming live video signal. Alpha Blend differs from standard blend in another way. With standard blend, all blended pixels have the same value of blend (e.g., 60%, 23%, etc.). With Alpha Blend, every pixel can define its own blend value. Many paint packages will allow you to paint into the alpha channnel to provide special video effects. Since the alpha channel is 8 bits, paint systems generally show you the alpha channel data as a 256-level black-and-white images. When the AlphaBlend feature is invoked, the white areas of the alpha portion of the images will contain 100% live video, while the black pixels will contain 0% live video. Any value in between will be some mixture of live video and graphic. For example, if you paint a smooth top-to-bottom gradient into the alpha channel of an image and then invoke the AlphaBlend feature of the TARGA+, you will see your background image with a smooth blend to live video as you move down (or up) the image. Consult the documentation of the application you are using to find out how the Alpha channel is used. When you have specified gray-scale values on the Alpha channel and set the TARGA+ screen to Interlaced mode, press the Alpha Blend masterkey to see live video in the whiter pixels.

VGA Pass Through

The VGA Pass through masterkey enables VGA pass through if you have the appropriate VGA pass through cables connected from the VGA board to the TARGA+ board. (Even if you are in a non-interlaced mode, activating this key sequence automatically takes you to an interlaced mode.

Live

The Live masterkey directs the TARGA+ to display the signal from your live video source. Your display should "go live."

Out

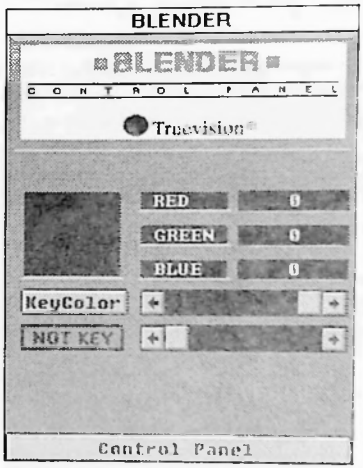
The Out masterkey simply allows you to turn off the masterkey effect temporarily. This could be useful is you are using an application which responds to one of the masterkeys you have defined and you would like to use this feature without having the corresponding feature invoked on the TARGA+.

By pressing this key, you can temporarily cause the MasterKeys Control Panel device to ignore key presses. To re-connect MasterKeys, simply press the Out key sequence again (default is CTL-O).

BLENDER SECTION

To access this panel, click on the icon labeled Blender in the main TARGA+ control panel.

The TARGA+ Blender control panel device is used to access video overlay capability of the TARGA+. Any pixel on the TARGA+ screen can be either a live pixel, a stored graphic pixel, or some mixture of the two. (The Control Panel button at the bottom of the menu takes you back to the main menu.)



The Blender allows you to select the color, called the Key Color, which will be used for blending. By selecting a key color, you separate the TARGA+ image into two pieces: the "key color" and the "not key color." The two sliders adjust the amount of live video which is mixed with each group. In other words, when the "KeyColor" slider is adjusted, video is mixed with all pixels on the screen which are the same color as the selected key color. When the "Not Key" slider is adjusted, video is mixed with every pixel on the screen which is not the same color as the key color. There are 256 levels of blend available. When the sliders are at the far left, the associated pixels are 100% graphic and 0% video. As the sliders are moved to the right, video begins to appear in the associated pixels. When the sliders are at the far right, the associated pixels are 100% video and 0% graphic.

Selecting a Key Color

To select the key color, click the mouse on the KeyColor button. Immediately the values in the Red, Green and Blue boxes will change to match the pixel currently under the cursor. In addition, the top half of the color square above the KeyColor button will be painted with the color currently under the cursor.

As you move the cursor around the screen, the Red, Green and Blue values will change to reflect the color currently under the cursor, while the top half of the color square will change to match that color. The bottom half of the color square will continue to reflect the previous key color.

When you locate the color you want to be the new key color, simply click down on the left mouse button (the select button). Now the entire color square changes to match the selected key color.

Using the Sliders

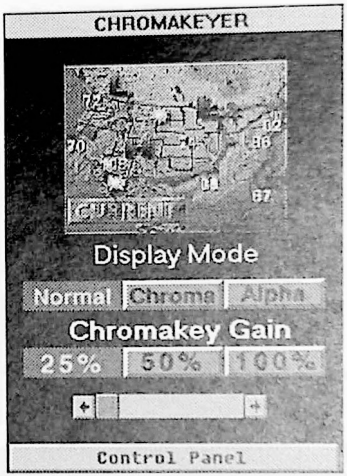
The sliders affect the degree to which live video is mixed with the Key Color pixels, or with the Not Key color pixels. When you manipulate the sliders, live video shows through the sliders.

If you have the control panel on the VGA screen then you should place the TARGA+ in Live mode - using the MasterKey sequence.

Use the blender masterkey (default CTL-B) to turn blending on, then use the same key sequence to turn blending off.

CHROMAKEY SECTION

To access this panel, click on the icon labeled ChromaKey in the main panel. The ChromaKey Control Panel device allows you to achieve professional-level chromakeying effects with your TARGA+ in conjunction with any software running under Windows.



Chromakeying is accomplished by overlaying a live video signal on top of a computer-generated still image or animation. This effect is similar to the effect provided by the Blender, except that in the case of the Blender (video overlay) the computer image is in front of the live video, while in the case of chromakeying the live video is in front. (The Control Panel button at the bottom of the menu takes you back to the main menu.) With the Chromakeyer, a very particular blue is used as the key color. When chromakeying is invoked, the TARGA+ watches the incoming video and replaces all of the pure blue pixels with the pixel value from the frame buffer. This effect is most often seen on nightly weathercasts where the meteorologist appears to be standing in front of a static or animated weather map. In reality , the weather reporter is simply standing in front of a well-lit blue screen. A down-stream keyer is mixing this image with graphics images stored in a computer (or similar storage device). The current state of the board is reflected by what buttons are depressed.

Normal Display Mode

No mixing of video occurs when the TARGA+ is in the Normal Display mode. This mode allows you to view the background image or sequence of images (animation) without interference from the the live video which will eventually be mixed on top of it.

Chroma Display Mode

Selecting the Chroma button will automatically configure the TARGA+ for interlaced mode so that live video can be mixed with the frame buffer image (remember: live video is interlaced by definition). Using this button allows the Control Panel to remain on the screen. To perform a full screen chroma when running Windows on the TARGA+, use the MasterKey sequence (default CTL-C).

Assuming that the incoming video signal includes at least some portions that are pure blue (or very close), the TARGA+ screen will show the graphics from the frame buffer in all areas that were blue in the incoming video.

Alpha Display Mode

When you press the Alpha button a dialog box appears that instructs you to use the mouse as the adjustment device. Movement of the mouse in a right/upward motion increases clip level, while a movement of the mouse in a left/downward motion decreases clip level. Left mouse clicks increase gain (or use the 25%, 50%, 100% options), while a right mouse click takes you back to the ChromaKey panel.

Once the dialog box button is clicked, the TARGA+ displays the output of the chromakeyer as a black-and-white image on the TARGA+ screen. The black-and-white image gives a clear representation of how the TARGA+ will perform the chromakeying. The black areas of the image will be where the graphics image appears, while the white areas are where the live video images will show. This black-and-white representation is useful for adjusting the lighting, camera, gain buttons and the slider to achieve the best chromakeying results.

ChromaKey Gain Buttons & Slider

The 25%, 50% and 100% Gain buttons plus the slider allow you to adjust the sensitivity of the chromakeyer for best results.

PERFORMING A SUCCESSFUL CHROMAKEY

See Chapter 7 for helpful hints in performing a chromakey.

Chapter 10 - TARGA+ Capture Utility for Windows

INTRODUCTION - TARGA+ CAPTURE UTILITY

TARGA+ Capture is an application that allows you to "take a snapshot" or capture a frame of live video in real time. The captured image can be saved or exported to other Windows applications.

Note: If you are using multiple TARGA+ boards in your system, Microsoft Windows and the Control Panel should be used on the first TARGA+ board in your PC. This first TARGA+ board is designated as board 0.

Note: The display configuration of the TARGA+ cannot be changed while you are running Windows. You must exit Windows, and use either TCONFIG or TMODE to alter your display.

Note: The use of TMODES 1 - 4 is not recommended for use with the TARGA+ Control Panel or the Capture Utility. These modes are available for backward compatibility with the Classic TARGA board.

Note: To use the TARGA+ Control Panel or the Capture Utility, you must have the TARGA+ Windows driver installed AND you must run Windows in either standard or enhanced mode.

Note: The TARGA+ Control Panel and the Capture Utility are not designed to work in conjunction with one another. You cannot, for instance, set up for chromakeying or blending on the Control Panel and then perform a capture. The TARGA+ Control Panel and the Capture Utility are independent applications.

To use Capture, you will need to connect a source of video input, such as a camera, VCR, or laser disk player to the TARGA+ Video In Connector on the board. Then use TCONFIG or the VIDI/O control panel to specify whether the video input is Composite Video, S-Video, or RGB.

Preliminary Setup

Before starting your Windows session, use the TARGA+ configuration program TCONFIG to set the display resolution and pixel depth of the TARGA+ display device. (Your captured images will be saved in the current resolution and pixel depth.) **This cannot be changed after a Windows session has begun.** If you are running Windows on another display adaptor, you can run TCONFIG any time during the Windows session.

If you are running Windows on another display adaptor (e.g., VGA) you will see a color resolution that is reduced from the TARGA+ resolution. To achieve the full resolution of the TARGA+, run Windows on the TARGA+.

Starting the Capture Utility

Start the Capture utility by double-clicking the capture.exe file in the TPLUS\WINAPP (default) directory. An empty window titled the "TARGA+ Capture" will appear.

FILE MENU ITEMS

Open

When this item is selected, a dialog box appears which allows you to browse for available BMP, JPG or TGA files. Click on a file in the filename window and then press the OPEN button. The image will load into the Capture window.

Save

When this item is selected, a dialog box appears which allows you to save the image to a directory and file format of your choice.

1. To save an image, simply select "Save" from the File menu.

2. In the Save dialogue box– click the drive letters and pathnames to get to the directory where you wish to save the image.

3. Select the Format type. (The THREE file formats available for saving captured images are BMP, JPG, and TGA.) You can set the file format to use when saving an image by clicking the "FORMAT" button in the "Save As" dialogue box.

4. Type the name of the image in the edit box where the name 'untitled' appears, and click the SAVE button. The image can now be opened in Capture, and imported to other Windows and DOS applications.

Capture Image

This item allows you to capture or "grab" a frame of live video.

1. Select "Capture Image" from the File menu (the Ctrl-G key combination has been assigned to this menu option, so pressing the Ctrl-G will achieve the same effect).

   An alert box is displayed which explains what is about to happen. If you click on the OK button, the TARGA+ screen will automatically switch to interlaced mode and a live picture coming from the input source will fill the entire screen.

2. Click the mouse, or press the space bar, when you are ready to capture a frame. It is not necessary for live video to be stationary. When the capture is complete, the image will occupy a window. Scroll bars may be present, or not, depending on your preference (see 'resizing an image' in the OPTIONS file items.)

Print

Selecting Print... from the File menu will cause the image to be printed on the printer currently selected in the Printer Setup dialogue.

Printer Setup

This menu option brings up a Windows dialogue that allows you to select a printer to which to print. (See the Windows User guide for more information.)

Quit

To quit Capture, select Quit from the File menu. If the current image has not been saved, you will be asked if you want to save it. Click YES to save and quit, NO to quit without saving, and CANCEL to remain in Capture.

EDIT MENU ITEMS

Copy

This menu item allows you to copy a portion of an image to the clipboard, which in turn can be pasted onto your current window.

1. To copy a portion of an image to the clipboard, move the cursor over the Capture Window. (The "Fit Window to Screen" option must be off to make a selection).

2. Make the selection (of an area in your image you want to copy) by drawing a rectangle around the area using the click, drag mouse, click technique. A box will appear outlining this area.

3. Select "Copy" from the Edit menu. The selected portion of the image is now in the "Clipboard".

Paste

This menu item allows you to paste the contents of the clipboard onto your current window. Simply select "Paste" from the EDIT menu, and the contents of the clipboard will be placed in your current window.

Clear

This menu item allows you to clear the contents of the current Window.

Show Clipboard

Selecting "Show Clipboard" from the Edit menu will cause the "Clipboard Window" to appear with the selected portion of the image in it.

OPTION MENU ITEMS

Fit image to Window

Selecting "Fit Image to Window" in the Options menu will cause the captured image to be re-sized to fit exactly in the Capture Window. The gray scroll bars may not be present around the image. The proportions of the image may be distorted. You can optionally type Ctrl-F to get this effect. When "Fit Image to Window" is enabled, the menu-bar can be toggled on and off using the Ctrl-M key combination. You can also toggle the title bar on and off by using the Ctrl-W key combination.

Fit Window to Screen

Selecting "Fit Window to Screen" in the Options menu will cause the borders of the Capture Window to disappear. This menu item is particularly useful when overlaying your image on live video. If both "Fit Image to Window," and "Fit Window to Screen" are enabled, the image will be expanded (possibly disproportionately) to fill the entire screen.

Chapter 11 - ShowMe Image Converter

SHOWME INSTALLATION

NOTE: ShowMe is designed to run in Microsoft Windows 3.0 or greater. You MUST have Windows to use this software.

The ShowMe utility is included on the TARGA+ SetUp Disk that accompanies the TARGA+ board, and is automatically copied to your hard drive when you run the TARGA+ installation program. The file showme.exe can be found in the TPLUS\WINAPP directory. For easier access, you can add this item to a program group using either the File Manager, or the NEW command in the Program Manager Drop-Down Menu.

USING SHOWME

ShowMe must be used in Windows 3.0 or greater. When ShowMe is opened, using either the icon or File Manager, the following window appears:

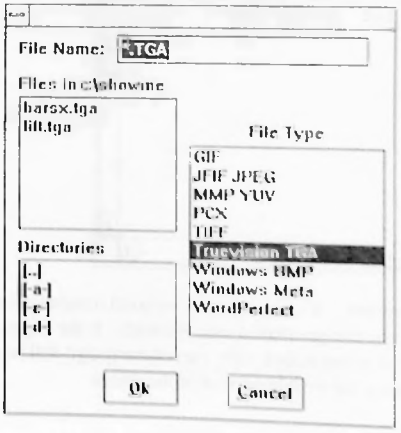
This functions like any window. It can be moved, re-sized, minimized and maximized. This window will display the images loaded into ShowMe. If the image is larger than the ShowMe window and is not being scaled, only part of the image will be displayed. The scroll bars are used to change the visible portion of the image.

FILE MENU

Clicking on the FILE menu presents you with the following options:

OPEN DIALOG BOX

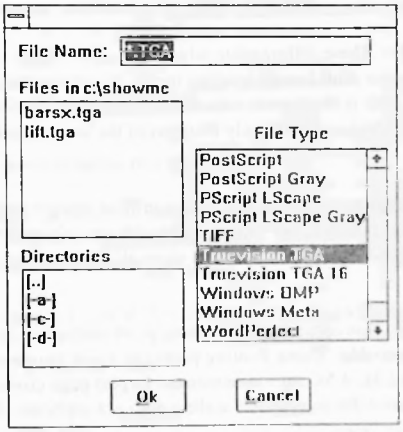
When you select OPEN, the dialog box shown below appears. This box is used to locate the image you wish to view. If your image is not in the ShowMe directory, double click on the parent directory icon ([..]) in the Directories box. This will list the directories and files above the current directory. Locate the directory containing the image you wish to access and double click on the desired directory or sub-directory. The "Files In" line will change to reflect that directory. Here you can scan for images by clicking and highlighting different formats. Highlighting a different file type changes the extension in the "File Name" command line and displays only files of the new type. You can also search any subdirectories that are displayed in the Directories box by double clicking them. Subdirectories can be scanned for different image formats in the same fashion as directories. Once the desired image is located, double click on it to load it into the ShowMe window.



SAVE DIALOG BOX

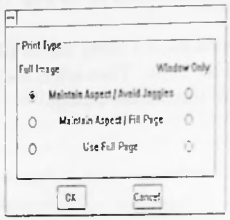
When you select SAVE, the dialog box shown in the other column appears: This screen is used to save the current image. For example, you could load a TIFF image, and using the SAVE command, save it as any format available in the File Type window.

To change a file to a new format, open the file using the OPEN command. Next, select the SAVE command and select a new File Type. Then select the location to which you wish to save the file. Click the OK button to finalize the change.



PRINT DIALOG BOX

To print the current ShowMe image, select PRINT in the File menu. The following dialog box will appear:



Full Image - Window Only: These differentiate which part of an image is to be printed. Selecting items listed under the **Full Image** heading means the entire image will be printed, regardless of how much or little is displayed in the ShowMe window. Selecting items listed under the **Window Only** heading will print only that part of the image visible in the ShowMe window.

Maintain Aspect/Avoid Jaggies: Selecting this option utilizes integer scaling: the image is sized to fit the page as best as possible, but height and width are only multiplied by whole numbers (1x, 2x, etc.). Jagged edges are minimized since all the pixels are evenly replicated.

Maintain Aspect/Fill page: This option uses a floating point multiplier (highest possible) to fill the page as much as possible. Using floating point can cause height and width to be multiplied by non-integers (2.3x, 4.5x, etc.) to ensure the largest page coverage. Images will sometimes appear jagged, since the non-integer scaling does not replicate all pixels evenly.

Note: Both of the above options maintain the original height-to-width ratio of the image.

Use Full Page: This option expands the image to fit the entire printer page size (margins included), without regard for the original aspect.

Printer Setup: This option is used to configure printers. It displays a standard Windows Printer Setup dialog box. It is used to set options on the currently selected Windows Printer.

OPTIONS MENU

Clicking the OPTIONS menu presents you with the following option:

SCALE: The Scale option is used to view an entire image in the ShowMe window. Normally, in non-scale mode, only a portion of the image is displayed in the ShowMe window and the rest is viewed by using the scroll bars. When the window size is altered, it affects only the amount of the image you can see at one time.

When Scale is selected, the entire image is compacted to fit in the ShowMe window. Window size can be adjusted at random, but the image aspect is not maintained. Widening or lengthening the window will cause the image to react accordingly.

HELP MENU

Clicking the HELP menu presents two options:

Image Info: Image Info presents an information box describing both the original image and the display device containing the ShowMe window. The box gives information concerning file format, image size, and pixel depth.

About: This option displays a small box containing the ShowMe software version number.

This page intentionally left blank.

Appendix A - Glossary

ADAPTER - Another name for graphics card or graphics board.

ANALOG VIDEO - A video signal which represents an infinite number of smooth graduations between given video levels. In contrast, a digital video signal assigns a number for each level and is limited to a finite set of levels.

ASCII FILE - A file that is a standard representation of text. ASCII is an acronym for American Standard Code for Information Interchange; pronounced "ask-ee." An ASCII file contains only plain text and basic text formatting characters such as spaces and carriage returns, but no graphics or special character formatting.

ASPECT RATIO - The ratio of an image or screen display's height to its width. Images will become distorted if forced into a different aspect ratio. For example, a height to width ratio of 3:4 or width to height ratio of 4:3 is the aspect ratio.

BACKUP - A copy of your data and/or program disk that can be used in case of disk or computer failure.

BIT - Contraction of binary digit. The smallest unit of information that a computer can hold. The value of a bit (1 or 0) represents a simple two-way choice such as yes or no, on or off, positive or negative, or something or nothing.

CHROMINANCE - Chrominance typically stands for the color component of the video signal. Chrominance has two components: hue and saturation. Hue is defined as tint. It is the characteristic of the color itself. Saturation indicates the degree to which the color is diluted by luminance, or white light.

COMPOSITE SYNC - Horizontal and vertical sync signals combined into one signal.

COMPOSITE VIDEO - A signal combining color signals (R, G, and B) with the luminance signal and sync pulses. This is the form the signal must take before it can be broadcast or recorded by standard means. (This is the basic manner in which all standard color TVs work.) Until recently, most monitors and projectors have accepted only composite video signals, although many are now available that accept RGB. When referring to television, composite video means that the video signal contains sync as well as picture information.

DECODER - A device which transforms NTSC or PAL composite signals to NTSC or PAL RGB or S-Video signals.

EGA - Enhanced Graphics Adapter.

ENCODER - A device which transforms NTSC/PAL RGB or S-Video signals into a single NTSC or PAL composite signal combining luminance, chrominance (color), and sync information.

FCC - Federal Communications Commission. A federal bureau that regulates radio and television broadcast standards. FCC regulations carry the force of law.

FIELD - One of two portions of the screen in an interlaced scanning display system. A field is half of an interlaced television image consisting of either all the odd (odd field) or all the even (even field) horizontal scan lines of a frame. A field is scanned in 1/60 second.

FLICKER - Bothersome light fluctuation on a screen that occurs if the display is not refreshed at a sufficiently high rate. Worse on high contrast images or thin horizontal lines. Not as noticeable on continuous tone graphics.

FRAME - A single complete video image, created by one complete interlaced scanning cycle. In the NTSC system, there are 30 frames per second, each made up of 525 scan lines. A frame equals 1 odd field (odd lines of the image) plus 1 even field (even lines of the image).

FRAME BUFFER - A device that holds one or more frame's worth of pixel information. Typically uses VRAM or DRAM devices for storage.

FRAME GRABBER - A device allowing the real time capture of a single frame of video into a frame buffer. Some frame grabbers may have buffers large enough to store several complete frames, allowing the rapid capture of a number of images. The distinction between a frame grabber and a digitizer is that a digitizer requires more than 1/30 second to capture a complete frame, and therefore is not a "real time" device.

GENLOCK - The capability to synchronize video signals from one device with those of another video source. This is required when mixing signals together as in overlaying computer graphics on an image from a camera, VCR, or videodisc player.

HERTZ - A unit of frequency equal to one cycle per second. Kilohertz (kHz) 1000 cycles per second. Megahertz (MHz) 1,000,000 cycles per second.

HORIZONTAL SYNC - The portion of the composite video signal that synchronizes the scanning electron beam of the monitor so that each line of picture information will start at the same lateral position during scanning.

HUE - The color tint of an image. The color of an analog video signal is determined by three factors: hue, saturation, and luminance. In the composite video signal, the hue is determined by the phase relationship to burst.

INTERLACED - An NTSC or PAL scanning method that divides the screen into two fields, alternately drawing odd-numbered and even-numbered scanlines. Lines from each field are interwoven to create a single image. Interlaced is the method used by broadcast standards. First the odd lines are scanned, and then the even ones.

For NTSC, 262 1/2 lines are scanned at a time. Since the scan is alternated between the odd and even lines, the scan must take place at high speed or the image would blink (flicker). This is done by scanning the screen from left to right, top to bottom on alternate lines 60 times a second. Each time the screen is scanned (odd or even) a single field is displayed. Two fields equals a single frame (the entire display of odd and even lines). Since the human eye has a persistence of vision equal to about 1/50 of a second, each field displayed appears to be visible as the next is scanned.

INTERRUPT - A signal requesting attention - usually sent from a peripheral device to the host.

KILOHERTZ (KHz) - One thousand hertz, or cycles per second.

LUMINANCE - Luminance is the black and white component of the video signal. The amount of luminance contained in a video signal is directly related to the amount of light intensity. The human eye views this as brightness. Luminance also plays a part in color signals. In the absence of luminance, color signals are black.

MEGABYTE (MB) - A unit of measurement equal to 1,024 kilobytes, or 1,048,576 bytes, commonly used in specifying the capacity of computer memory.

MEGAHERTZ (MHz) - One million hertz, or cycles per second.

MULTISCAN MONITORS AND PROJECTORS - Video displays which accept a wide variety of horizontal and vertical timings, from NTSC to Hi-Res signals, or from PAL to Hi-Res. Multiscan monitors and projectors will often automatically adjust to the appropriate timing. Since the horizontal frequency range varies among different models, product specifications should be checked.

NON-INTERLACED - Scanning method that draws all lines on a display from top to bottom in sequential order usually at a specific rate per second. Does not show the flicker associated with interlaced mode if the vertical scan rate is fast enough.

NTSC COMPOSITE - A video signal standard proposed by the National Television Standards Committee of the Electronics Industries Association and adopted by the FCC for broadcast television in the United States. The signal is a composite video signal of 525 lines, interlaced, 60 fields per second (30 frames per second) with a bandwidth limited to 4 MHz so that it will fit into a 6 MHz broadcast television channel without interfering with adjacent channels. NTSC is also the standard system for Japan.

The standard was created to allow color television signals to be compatible with existing monochrome (black and white) television. The restriction of compatibility with the earlier technology results in compromises in color image quality. The NTSC composite signal format is required for video recording except in the recently developed component video technology.

PAL - Phase Alternative Line system. The television broadcast standard for most of western Europe. Based on the 50 Hz power system, it displays 625 lines interlaced at 50 fields per second (25 frames per second). PAL is not compatible with NTSC or SECAM, though conversion between the standards is possible. Video products to be used in Europe require compatibility with PAL standards.

PIXEL - Pixel is short for the term Picture Element. A pixel represents the smallest area of the screen that can be changed to a different color, stored, addressed, or displayed. Pixels can vary in size and shape depending on the monitor and graphics mode. The number of pixels on the screen are measured in width-by-height fashion.

REAL TIME - Displaying an image or responding to a user's request almost simultaneously with its occurrence. Grabbing in real time is grabbing a field in 1/60 sec or 2 frames in 1/30 sec.

REFRESH - Scanning of an image on the screen. The refresh rate refers to the number of frames scanned on the screen per second.

RESOLUTION - This term refers to how sharply an image can be defined on the screen of the CRT. Amount and degree of detail in the video image, measured along both the horizontal and vertical axes. Resolution is the combination of the number of vertical and horizontal lines or pixels. Generally the higher the numbers the finer the display.

RETRACE - Return of the electron beam to the left side or top of the screen after a horizontal or vertical scan.

RGB - The primary colors in color video - red, green, and blue. Often used to refer to a type of video color encoding scheme and the type of color monitor that displays it. In RGB, a color is defined as percentages of red, green, and blue. The combination of the color components determines the variety of shade the image takes on. This variety of color is a function of each color signals' strength. If all the colors are turned off the result is a black screen. All colors fully on give a white image.

S-VHS (Super VHS) - A format for recording S-Video. This component video system records color signals independently of luminance signals, avoiding the need to combine them in a composite video signal. The result is an image with significantly higher vertical resolution than normal VHS (400 lines instead of 230).

S-VIDEO - A video signal that separates luminance and color (Y/C). This method does not reduce bandwidth or compromise the RGB components, and results in images of higher resolution and better color quality than composite video. Though designed for high end television production, similar recording methods have recently become available to the consumer market.

SATURATION - Degree to which a color is undiluted by white light. A color that is 100 percent saturated contains no white light. It is the property that makes pale pink different from a pure red of the same hue, for example.

SCANNING - Process of "writing" or "drawing" a raster image on a monitor's screen by successively addressing points on the display surface.

SECAM - Systeme Couleur Avec Memoire. The television broadcast standard for France, the USSR and various eastern European countries. Like PAL, SECAM is based on a 50 Hz power system, but it utilizes a different encoding process and displays 819 lines interlaced at 50 fields per second. SECAM is not compatible with NTSC or PAL, though conversion between the standards is possible.

SYNC - Short for synchronous. Refers to signals used to synchronize the horizontal and vertical scans of a video signal. Usually refers to the pulses necessary to coordinate the operation of several intereconnected video components.

SYNC GENERATOR - A device that generates the horizontal and vertical sync signals.

SCREEN RESOLUTION - Usually, the number of available pixel by pixel positions in each dimension of a display.

TARGA+ - Registered trademark of Truevision Advanced Raster Graphics Adapter.

VERTICAL SYNC - A pulse used to trigger the vertical retrace of a scanning electron gun from the bottom of a frame back to the top left.

VGA OVERLAY - when the VGA and TARGA+ are connected through their respective feature connectors, you can overlay VGA graphics over TARGA+ graphics on the TARGA display monitor. VGA overlay is possible only in a VGA Overlay Compatible Mode.

VGA PASS THROUGH - the ability to connect the feature connector of the VGA card to the feature connector of the TARGA+ board for the purpose of sending or "passing" the VGA signal to the TARGA+ board for display on the TARGA+ monitor.

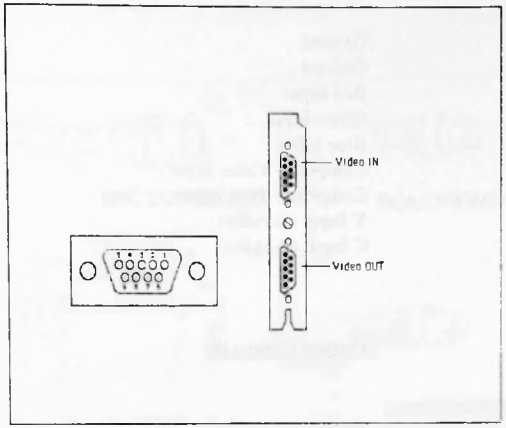
VIDEO OVERLAY - A method of combining a paint image(graphics) and a live video image.

VIDEO SIGNAL - A dynamic signal which represents the varying levels of a video image but does not contain the sync pulses for its display. The video signal can be combined with the sync pulses into a composite signal.

WAIT STATE - As the name implies, it is a condition in which the CPU stops whatever it is doing to give the memory circuits a chance to catch up. The CPU "waits" for a signal from the slower memory. You can add wait states to synchronize a faster processor with a slow memory. (Adding wait states slows down the performance of the CPU.)

Appendix B - Cables and Connectors

The diagram below shows the Video IN and Video OUT connectors on the TARGA+. It also shows the pin sequence for the actual connector.



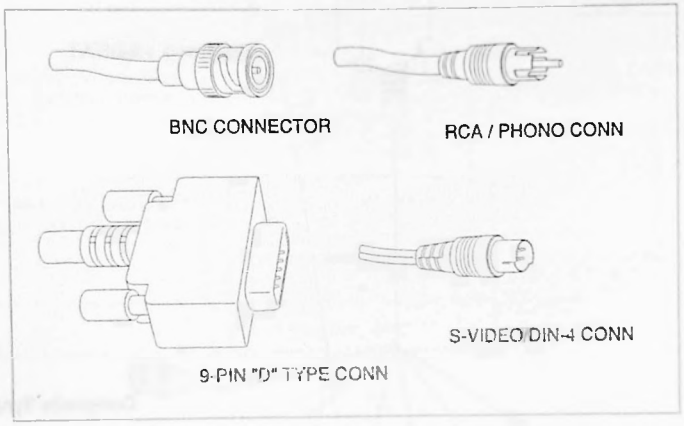
Input and Output connectors on the TARGA+

If you need a custom cable for your particular hardware configuration, we suggest you call CABLES TO GO at 1-800-826-7904. (Be sure to have your pin specs available when you call.)

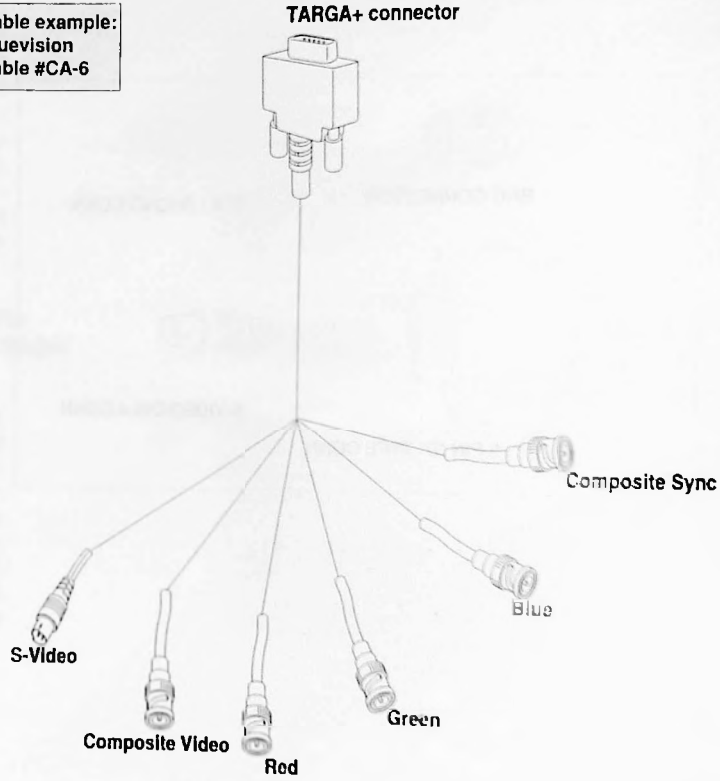
Pin Number	Input Connector
1	Ground
2	Ground
3	Red Input
4	Green Input
5	Blue Input
6	Composite Video Input
7	Composite Sync Input
8	Y Input (S-video)
9	C Input (S-video)

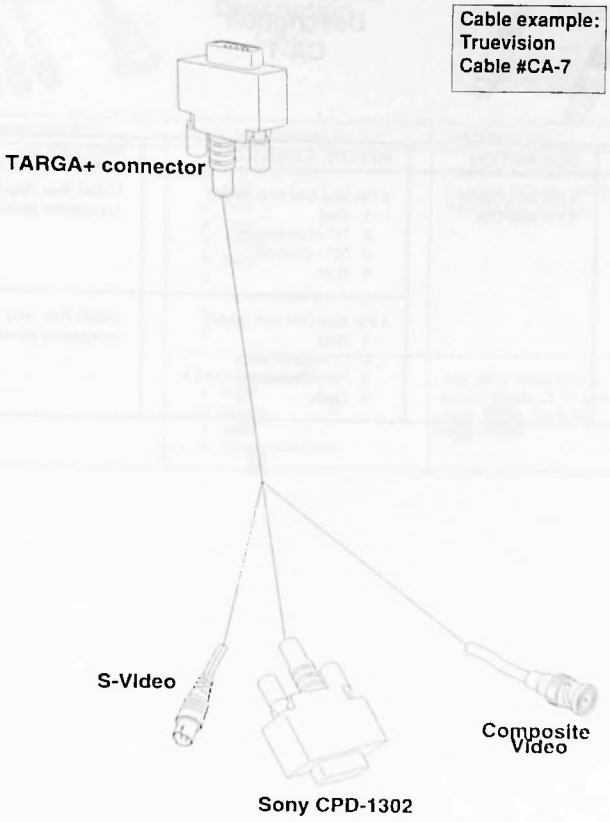
Pin Number	Output Connector
1	Ground
2	Ground
3	Red Output
4	Green Output
5	Blue Output
6	Composite Video Output
7	Composite Sync Output
8	Y/H Sync Output
9	C/V Sync Output

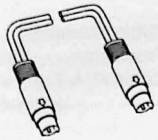
The diagram below illustrates the various types of connectors **generally** found on video cables. Your cables should have a 9-pin D type connector on one end (for the TARGA+ input and output) and some other connector combination on the other end.



Cable example:
Truevision
Cable #CA-6

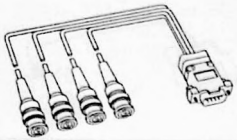



Cable example:
Truevision
Cable #CA-7
TARGA+ connector
S-Video
Composite
Video
Sony CPD-1302



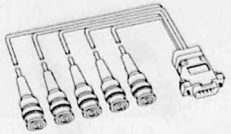
CABLE GUIDE
Description
CA-1

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–1	4 Pin Mini-DIN to 4 Pin Mini-DIN	4 Pin Mini-DIN End (Male) 1 Gnd 2 "Y" - Luminance 3 "C" - Chroma 4 Gnd	VidMO Box, Any S-VHS compatible devices
		4 Pin Mini-DIN End (Male) 1 Gnd 2 "Y" - Luminance 3 "C" - Chroma 4 Gnd	VidMO Box, Any S-VHS compatible devices



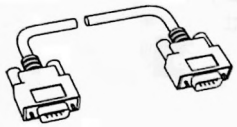
CABLE GUIDE
Description
CA-2

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–2	9 Pin to Four BNC	9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 7 Composite Sync 8 9	TARGA, NuVista, ICB (output), VDA/D, TARGA+, TARGA M8, ATVista
		4 BNC End (Male) 1 Red 2 Green 3 Blue 4 Composite Sync	Any RGB video device supporting R, G, B, and Sync Inputs Via BNC connectors.



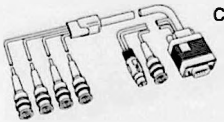
CABLE GUIDE
Description
CA-3

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–3	9 Pin to Five BNC	9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 Composite Video or Alpha 7 Composite Sync 8 9	ATVista, NuVista+, TARGA, TARGA+, ICB (output), TARGA M8, VDA/D
		5 BNC End (Male) 1 Red 2 Green 3 Blue 4 Composite Sync 5 Composite Video Or Alpha	Any RGB video device supporting R,G,B & Sync Inputs Via BNC Connectors.



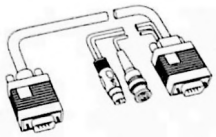
CABLE GUIDE
Decsription
CA-4

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–4	9 Pin to 9 Pin	9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 Composite Video 7 Composite Sync 8 "Y" or H-Sync 9 "C" or V-Sync	ATVista, NuVista+, TARGA, TARGA+
		9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 Composite Video 7 Composite Sync 8 "Y" or H-Sync 9 "C" or V-Sync	Sony 1302 Monitor using H and V Sync, RGB Analog Monitors with suitable pinouts or RGB / Composite output devices (i.e. cameras) with suitable pinouts.



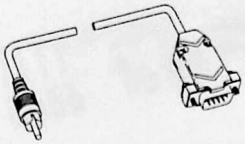
CABLE GUIDE
Description
CA-6

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–6	9 Pin to Five BNC with One 4 Pin Mini-DIN	9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 Composite Video 7 Composite Sync 8 "Y" - Luminance 9 "C" - Chroma	ATVista, NuVista+, TARGA, TARGA+
		5 BNC End (Males) 1 Red (Red) 2 Green (Green) 3 Blue (Blue) 4 Composite Sync (White) 5 Composite Video (Black)	Any RGB video device supporting R, G, B and Sync inputs via BNC Connectors. Any video device capable of handling Composite Input.
		4 Pin Mini-DIN End (Male) 1 Gnd 2 "Y" - Luminance 3 "C" - Chroma 4 Gnd	Any video device capable of handling S-Video Input.



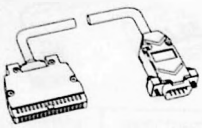
CABLE GUIDE
Description
CA-7

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–7	9 Pin to 9 Pin with One 4 Pin Mini-DIN and One BNC	9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 Composite Video 7 Composite Sync 8 "Y" - Luminance 9 "C" - Chroma	ATVista, NuVista+, TARGA, TARGA+
		9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 7 8 Composite Sync 9	Sony 1302 Monitor or RGB Analog Monitors with suitable Pinouts
		4 Pin Mini-DIN End (Male) 1 Gnd 2 "Y" - Luminance 3 "C" - Chroma 4 Gnd	Any video device capable of handling S-Video Input
		1 BNC End (Male) 1 Composite	Any video device capable of handling Composite Input



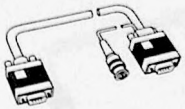
CABLE GUIDE
Description
CA-10

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–10	9 Pin to RCA Phono	9 Pin D End (Male) 1 Gnd 2 3 4 5 6 Composite Video 7 8 9	ATVista, NuVista+, TARGA, TARGA+
		RCA Phono End (Male) 1 Composite (Gnd on shield)	



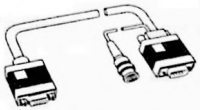
CABLE GUIDE
Description
CA-12

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–12	9 Pin to 34 Pin	9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 7 Composite Sync 8 9	ATVista, NuVista+, TARGA, TARGA+
		34 Pin Sony End (Female) 1 - 7 8 Gnd 9 Gnd 10 Gnd 11 13 Gnd 14 - 24 25 Red 26 Green 27 Blue 28 - 29 30 Composite Sync 31 - 34	Sony monitors supporting the Sony standard 34 Pin connector.



CABLE GUIDE
Description
CA-16

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–16	9 Pin to 9 Pin with One BNC	9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 Composite Video 7 8 H Sync 9 V Sync	ATVista, NuVista+, TARGA, TARGA+
		9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 7 8 H Sync 9 V Sync	Sony 1302 Monitor or RGB Analog Monitors With Suitable Pinouts Capable of Handling Separate Horizontal and Vertical Sync.
		1 BNC End (Male) 1 Composite	Any video device capable of handling Composite Input.



CABLE GUIDE
Description
CA-17

PART#	DESCRIPTION	PINOUTS & SIGNALS	PRODUCT (S)
CA–17	9 Pin to 15 Pin with One BNC	9 Pin D End (Male) 1 Gnd 2 Gnd 3 Red 4 Green 5 Blue 6 Composite Video 7 8 H Sync 9 V Sync	ATVista, NuVista+, TARGA, TARGA+
		15 Pin D End (Female) 1 Red 2 Green 3 Blue 4 Gnd 5 6 Red Gnd 7 Green Gnd 8 Blue Gnd 9 10 Gnd 11 Gnd 12 13 H Sync 14 V Sync 15	NEC MultiSync 3-D or RGB Analog Monitors With Suitable Pinouts using High Density 15 pin DB-15 connectors.
		1 BNC End (Male) 1 Composite	Any video device capable of handling Composite Input.

This page intentionally left blank.

Appendix C - Troubleshooting

Problem: You do not see any video output.

1. Check that your TARGA+ is properly connected to your monitor. Then turn your monitor OFF and ON again. Verify your cable connections.

2. If you are using an RGB monitor, check your monitor and verify that it is in **analog** RGB mode, not digital RGB mode.

3. Is the monitor connected to the correct output connector? It's very easy to switch the input (top) and output (bottom) connectors.

4. Is your monitor set up to display the type of output being provided by the TARGA+ (i.e., composite video or analog RGB output or S-video?)

5. You may not see a display if you are using VGA pass through and have not switched from VGA output to TARGA+ output. (The TARGA+ DOS Driver, TARGAP.SYS, defaults to VGA output.) Either change the display parameter (d) in the driver, TARGAP.SYS, to d6 (TARGA+ only) or change the display mode to TARGA+ through the configuration program.

6. If you have VGA pass through connected and your SW2 switch is set to S-VIDEO - then you will not get video output. Set the SW2 switch to H/V.

7. You will NOT see a display if either the base I/O address or the Memory Segment address is set incorrectly. Try changing these addresses one at a time.

8. Check that the I/O base address being accessed in your software is the correct address for the TARGA+ board. The TARGA+ default address is 0x220. If you changed the default because there was another board using this address, you must also **configure your software to access the alternate address you assigned**. See the manual of your particular software application for the proper procedure.

9. It is possible that you will not see a display because your computer is less than 100% compatible. If you are using an IBM clone, you might try changing WAIT STATES through the configuration program or by manually altering the command line for the TARGA+ DOS Driver.

10. Ensure that your TARGA+ is firmly seated in the bus connector of your PC. **(Be sure that the power is turned OFF before checking this.)**

Problem: You cannot get video input.

1. Verify your cable connections.

2. If you are using an S-Video camera or other S-Video device, you should select the S-Video input option in your application.

Problem: You want non-interlaced video output instead of interlaced video output.

1. Run the TARGA+ configuration program and set your display for non-interlaced.

2. Refer to the documentation of the software you are using and look under "non-interlaced."

Problem: Your display has missing pixels or areas seem distorted.

1. A potential cause of this symptom is that the TARGA+ display memory is assigned to the same memory space as another adapter in your machine. Check the memory segments used by the other boards in your machine. If you identify a board which uses the segment assigned to the TARGA+, please change the memory segment through the TARGA+ DOS driver, TARGAP.SYS, or through the configuration program.

   (If you are using a VGA card which uses memory segment 0xA000, you will need to put the TARGA+ at an alternate address such as 0xD000.

2. If your TARGA+ board is currently in a 16-bit slot, try moving it to an 8-bit slot.

3. If you find that your board is not functioning properly, you may have to insert wait states. The insertion of wait states increases the time available for the TARGA+ to respond to memory or I/O cycles initiated by the host computer. As the bus speed of the host computer increases, the time provided for the TARGA+ to respond decreases.

   If there is insufficient time for the TARGA+ to respond, data transfers will be corrupted and the system will not function properly. You may have to insert additional wait states in order to guarantee error free operation.

   You can change wait states by altering the options in the TARGA+ DOS Driver, or by changing the wait states option in the TARGA+ Configuration Program.

Problem: Your computer is unable to read the TARGA+ software diskettes provided.

1. You are probably not using DOS 3.1 or later. To verify this, execute the command: VER at the DOS prompt. This command will return the version number of your DOS release. If the command is not recognized, your DOS release pre-dates DOS 3.1 and you must get a later release.

2. It is possible that the information on your diskette was damaged. Try the diskette on a machine running DOS 3.1 or later. If it is still unreadable, contact your Truevision dealer to replace the damaged diskette.

Problem: You cannot get your original TARGA software to work.

1. Check that you have used the TARGA+ configuration program to initialize the board as an original TARGA.

Problem: You cannot get the TARGA+ software to work.

1. Is the TARGA+ DOS driver loaded?

2. Have you selected an appropriate resolution for your software application using the configuration program.

Problem: You are using VGA pass-through to switch back and forth between VGA graphics and TARGA+ graphics, but the VGA screen is now monochrome.

1. When the TARGA+ Setup software is initially installed, there is a VGA initialization option that eliminates this problem.

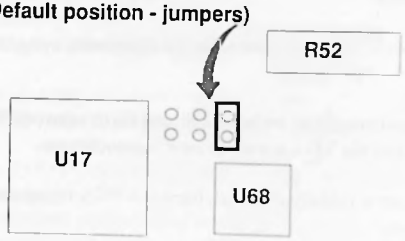
Problem: You are using VGA pass-through to switch back and forth between VGA graphics and TARGA+ graphics, but the text on the VGA screen is blurred, snowy, noisy, or looks like it has a colored halo around it.

1. Turn your computer OFF.

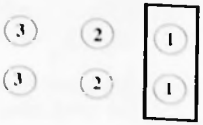
2. Remove the TARGA+ board from your computer.

3. Place the TARGA+ board so that the components face you.

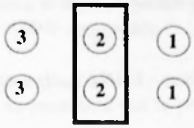
4. Look at the the top edge of the board - toward the middle. You will see a set of three jumpers.



5. The default position of the plastic jumper piece is the last set of pins (labeled 1 in the diagram).



6. Move the plastic jumper piece from the default position so that it fits over the second set of pins (labeled 2 in the diagram below).



7. Re-install your TARGA+ and turn your computer ON.

If the VGA text still looks unacceptable, you may have to repeat this procedure and move the plastic jumper piece to the set of pins (labeled 3 in the diagram).

Problem: After installing the TARGA+ Setup Software and rebooting your PC to make the changes effective, you get the message "Notice: TARGA+ Switcher is already loaded!"

1. Edit your AUTOEXEC.BAT and insert the following command *before* the line that reads - TPLUSTSR.

   set tplustsr=66

   This should allow the TARGA+ TSR to load - thereby eliminating the error message. If this does not work, simply try another number between 60 and 67.

This page intentionally left blank.

Appendix D - Common Questions

Q. What are the computers in which the TARGA+ will work?

A. The TARGA+ was designed to take advantage of the sixteen-bit data bus of the AT style (ISA bus) compatible computer and achieves maximum performance in this machine. The TARGA+ has not been tested in all compatible computers. However, it will work in any personal computer that is "100% compatible."

Q. How many expansion slots does the TARGA+ use?

A. The TARGA+ requires only one expansion slot in your computer.

Q. Will the TARGA+ board work in my computer if I have another graphics card?

A. Yes. However, you must determine if your other graphics card uses memory segment 0xA000 (the TARGA+ default). If it does, you must change the memory segment of the TARGA+ through the software provided. See Chapter 1.

Q. Should I use a composite video monitor or analog RGB monitor with my TARGA+?

A. It is recommended that you use an analog RGB multi-scan monitor with horizontal scan rates between 15 and 35 KHz, and vertical scan rates between 25 and 100 HZ.

Q. Which EMM Manager should I use?

A. There are a number of memory managers available on the market. One such manager is QEMM from Quarterdeck.

Q. What camera should I use with the TARGA+?

A. If you have an NTSC version of the TARGA+ board, you can use any camera which generates a standard NTSC or composite video signal, an RGB signal, or an S-video NTSC signal. If you have a PAL version of the TARGA+ board, you can use any camera which generates a standard PAL or composite video signal, an RGB signal, or an S-video PAL signal. (RGB and S-video cameras produce a sharper image with higher color definition than composite video images.)

Q. Can I capture the output from a VCR or laserdisc on a TARGA+?

A. Yes. The TARGA+ can directly capture the composite video output from a VCR or video disk.

Q. Can I capture the output from a still video camera?

A. Yes.

Q. Can I videotape the composite video output from my TARGA+?

A. Yes. Attach a composite video cable from your VCR to the output of the TARGA+.

Q. Can I genlock to an external video source or to house sync?

A. Yes. Since you can genlock to an external source, TARGA+ can be used in studio applications with an external sync signal supplied as either a composite sync signal, a black burst signal, or a composite video signal. Come in on pin 6 for composite, or pin 7 for RGB.

Q. What does it mean to "zoom" the image?

A. The TARGA+ allows you to "zoom" or magnify part of an image. You may increase the pixel size by a factor of 2x, 4x, or 8x. For example, when you use the 4x zoom, a portion of the screen that previously only filled one-fourth of the screen now fills the entire screen. Each pixel from the previous image is enlarged four times. Zooming is a function of the software application you are using. For example, you may have to press a function key to zoom in/out or click on a menu item with your pointing device.

Q. After I have zoomed an image, can I see different portions of the original screen?

A. Yes. When you "zoom" the screen, only a portion of the original image is visible. Follow the directions in your application software to see different portions. For example, you may have to move your pointing device or use specific keyboard keys to move around the screen.

Q. Can I zoom a live image?

A. No. You can only zoom in Memory Mode or in Overlay Mode. In Overlay Mode, the live portion of the screen is not zoomed.

Q. Can I pan the screen without zooming?

A. Vertically: Yes, you can pan vertically if all the lines in the display memory are loaded. Horizontally: You can pan without being zoomed in any horizontal resolution greater than 512 but less than 1024. (For example, 756 x 486.) Follow the directions in the application software you are using for panning techniques. You may have to move your pointing device or use specific keyboard keys to pan.

Q. TARGA+ normally generates interlaced video output. Can I make it generate non-interlaced video output?

A. Yes, if you are using a multi-scan monitor. You can change the default video output format from interlaced output to non-interlaced video output using the software provided with the TARGA+.

Q. Can I capture a non-interlaced video signal?

A. Video equipment typically outputs an interlaced signal. Therefore it is not possible to capture a non-interlaced video signal.

Q. Can the TARGA+ generate output compatible with the European Video Standard, PAL?

A. If your TARGA+ is a PAL board, it will provide PAL scan rates on the output at the resolutions available in the Setup Software.

Q. Does TARGA+ support capture while in video overlay mode?

A. Yes.

Q. Does TARGA+ support capture while in VGA overlay mode?

A. No, the VGA signal is non-interlaced.

Q. Can I capture the output from my VGA card?

A. No. the VGA signal is non-interlaced and you can only capture an interlaced signal.

Q. Can I record the output from my VGA card?

A. There are special VGA cards that do output an interlaced video signal such as the VideoVGA™ board from Truevision. By connecting a cable from the output of VideoVGA to the input of TARGA+, you can attach a VCR to the output of TARGA+ and record. Ordinary VGA cards output a non-interlaced video signal which cannot be recorded.

Q. Can programs developed for the original TARGA board run on the new TARGA+ board?

A. Absolutely. You will have to run the configuration software provided to set the TARGA+ to behave like an original T8, T16, T24, or T32.

Q. What software has been developed for the TARGA+?

A. Truevision, Inc. sells two packages for the TARGA+.

1. TIPS Imaging Software - a paint and image manipulation package which you can run in either 16 or 32 bit-mode.
2. TIPS TypeRight - an easy to use program for adding high quality text at screen resolution to any TARGA image.

Many developers are writing software for the TARGA+. These applications are listed in the Truevision Software Catalog available from your dealer or from Truevision (call 317-841-0332). In addition, all original TARGA software will run on the TARGA+.

Q. How can I develop software for the TARGA+?

A. If you are interested in developing software for the TARGA+, a TARGA+ Graphics Toolkit and a TARGA+ Technical Reference Manual are available. Please contact our DEVELOPER SERVICES department at 317-841-0332 for more information.

Q. Is there a Windows™ Version 3.0 / 3.1 driver for TARGA+?

A. Yes. The TARGA+ Windows 3.0 / 3.1 Display Driver is bundled with the TARGA+ board.

Appendix E - TARGA+ Specifications

The TARGA+ represents an enhancement and integration of the industry standard Targa Series. Numerous new features have been added (denoted by a √), and the original line of four distinct products (Targa 8, 16, 24, and 32) has been integrated into one product which provides software compatibility with all models. The TARGA+ may be ordered in three NTSC and two PAL configurations -- depending on the color and spatial resolution desired. All configurations support composite video, S-video, and RGB input/output as well as digital linear keying and digital chroma keying.

Host Computer

Single slot in a PC AT or compatible

Memory Configuration

√ Four available memory configurations
√ Any memory configuration may be upgraded

	TARGA+ 16	TARGA+16/32	TARGA+ 64
NTSC	0.5 MByte	1 MByte	2 MBytes

	TARGA+ 16	TARGA+16/32
PAL	1 MByte	2 Mbytes

Addressable Resolution -- NTSC

NTSC	TARGA+ 16	TARGA+16/32	TARGA+ 64
8bpp	1024 x 512	1024 x 512DB	1024 x 1024DB
16bpp	512 x 512	1024 x 512	1024 x 1024
32bpp		512 x 512	512 x 1024

Addressable Resolution - PAL

PAL	TARGA+ 16	TARGA+ 16/32
8bpp	1024 x 1024	1024 x 1024DB
16bpp	512 x 1024	1024 x 1024
32bpp		512 x 1024

Color Resolution

	Colors	Palette	Overlay	Blending
8bpp	256	output LUT		
16bpp	32,768	output LUT	1 bit plane	2 levels
24bpp	16,777,216	output LUT		
32bpp	16,777,216	output LUT	8 bit planes	256 levels

Output Color Look Up Table

- √ Three 256 entry x 8 bit LUT's (red channel, green channel, blue channel)
- √ Gamma and/or color correction in 16 bpp, 24 bpp, and 32 bpp modes
- √ Color mapping and/or cycling
- √ LUT bypass mode for compatibility

Standard Non-Interlaced Display Resolutions

	Resolution	Horiz Scan Rate	
√	768 x 576	31.250 KHz	square pixels
√	756 x 486	31.469 KHz	
√	720 x 576	31.250 KHz	
√	720 x 486	31.469 KHz	
√	640 x 480	31.469 KHz	square pixels
√	512 x 476	31.250 KHz	underscan
•	512 x 400	31.469 KHz	underscan
√	512 x 576	31.250 KHz	overscan
√	512 x 486	31.469 KHz	overscan

Standard Interlaced Display Resolutions

√	1024 x 768	24.00 KHz	square pixels
√	800 x 600	30.00 KHz	square pixels
√	768 x 576 PAL	15.625 KHz	square pixels
√	756 x 486 NTSC	15.734 KHz	
√	720 x 576 PAL	15.625 KHz	
√	720 x 486 NTSC	15.734 KHz	
√	640 x 480 PAL	15.625 KHz	square pixels
√	640 x 480 NTSC	15.734 KHz	square pixels
√	512 x 476 PAL	15.625 KHz	underscan
•	512 x 400 NTSC	15.734 KHz	underscan
√	512 x 576 PAL	15.625 KHz	overscan
•	512 x 486 NTSC	15.734 KHz	overscan

VGA Pass Through and Overlay

√ Allows one monitor solution
√ Software selectable VGA or Targa+ output
√ Overlay VGA graphics on Targa+ non-interlaced output

Composite/S-Video Decoder

(NTSC Version or PAL Version)

√ Software selectable composite, S-video, or RGB input source
√ Software adjustable hue (NTSC only), saturation, contrast, and offset

Composite/S-Video Encoder

(NTSC Version or PAL Version)

√ Simultaneous composite, S-Video, and RGB outputs
√ Accurate burst gate blanking (meander burst gate in PAL)
√ 75 Ohm output impedance on all outputs

Genlock

- Will lock to composite video, composite sync or black burst input
- Horizontal phase adjustment
- √ Software adjustable subcarrier phase
- √ Subcarrier phase locked to input video
- Robust dual phase lock loop
- √ Will lock to VCRs and Video Disk players
- √ Odd field, even field, and frame detect

Analog to Digital Converters

- Three 8-bit ADCs (red channel, green channel, blue channel)
- √ Software adjustable RGB level and offset
- √ Programmable sample rate from 9.5 to 15 MHz

Digital to Analog Converters

- Three 8-bit DACs (red channel, green channel, blue channel)
- √ Software adjustable output level
- √ Adjustable RGB balance
- √ Programmable pixel clock from 9.5 to 30 MHz

Digital Linear Keyer (Mixer)

- √ Targa 32 type mixing performed in the digital domain
- √ 256 levels of digital linear keying based on alpha channel
- √ Control registers allow fades to any color
- √ Overlay bit can select between any two mix ratios
- √ Mixer can cross fade between two 16-bit images

Digital Chroma Keyer

- √ High quality chroma key over blue background
- √ Shadow preservation

Input/Output Connectors

- Composite Sync signal with equalization and serration pulses

Pin Number	Input Connector
1	Ground
2	Ground
3	Red Input
4	Green Input
5	Blue Input
6	Composite Video Input
7	Composite Sync Input
8	Y Input (S-video)
9	C Input (S-video)

Pin Number	Output Connector
1	Ground
2	Ground
3	Red Output
4	Green Output
5	Blue Output
6	Composite Video Output
7	Composite Sync Output
8	Y/H Sync Output
9	C/V Sync Output

Programmable Pixel Clock

- Genlockable to external source
- √ 30 MHz maximum

Programmable Hardware Zoom and Pan

- 2,4,8x zoom
- Smooth horizontal and/or vertical panning with wrap-around
- √ Capture while zoomed

Programmable Video Timing

- Interlaced or non-interlaced format
- Underscan or overscan format
- √ Horizontal and vertical scan rate
- √ Horizontal and vertical sync width
- √ Horizontal and vertical blanking
- √ Horizontal and vertical front/back porch
- √ Vertical serration and equalization
- √ Meander or fixed burst gate

Operation Modes

- Display
- Live
- Overlay
- √ Blend (digital linear keyer)
- Capture
- Overlay capture

Host Computer I/O Interface

- Eight switch selectable I/O base address locations
- 4 bytes of contiguous I/O space required
- 16 bytes of contiguous I/O space optional

Host Computer Interrupts

- Interrupt to host on one of four switch selectable interrupt request lines

Host Computer Memory Interface

- 16 bit data bus interface in real mode (MS-DOS)
- √ 16 bit data bus interface in protected mode (OS/2, Xenix)
- √ Paged or linear memory map
- Will auto-configure to run in an eight bit slot
- Eight software selectable memory locations in real mode
- Fifteen software selectable memory locations in protected mode.
- Software selectable memory space enable
- Two 32KB memory windows or two 1/2 MB or one 2MB memory window
- Read and write data mask (32 bits/pixel wide)

Power Consumption

- 1.38 Amps at +5V
- 500 mA at +12V
- 5 mA at -12V
- 12.96 Watts Total

Mechanical

- 13.35" x 4.5" x 0.6"

Operating Environment

- Ambient Temperature 0° - 55° C

This page intentionally left blank.

Appendix F - Customer Support

If you have questions or experience problems, we recommend you call your Truevision dealer. The dealer can assist you with troubleshooting, and if necessary, advise you of the proper "Return Material Authorization" procedure.

Please have the following information available when you call regarding a problem with your board:

1. Serial Number of TARGA+ board.

2. Computer system you are using - for example: Compaq 386/25MHz.

3. Types of additional boards in your computer plus the I/O and memory segment locations they use.

4. List of switch settings for switches SW1, SW2, and SW3.

5. Type of devices connected to the TARGA+.

6. Type of memory manager used on this system.

This page intentionally left blank.

Appendix G - TARGA+ DOS Driver

OVERVIEW

In order to use new TARGA+ application software, you must have the TARGA+ DOS driver installed and then use the configuration utility to set up the display configuration of the board.

The DOS device driver (TARGAP.SYS) takes advantage of the enhanced features of the TARGA+ board and can be installed with default settings or with options.

If you used the TARGA+ installation program, the TARGA+ DOS driver was automatically installed. You can change the options on the TARGA+ DOS driver through the TARGA+ configuration program or by editing it manually. Following is the procedure for editing the driver manually.
Add the name of the drive and directory that contains your TARGA+ Setup software to the PATH line in the AUTOEXEC.BAT file. For example, if your Setup software is located on the c: drive in directory TPLUS, then your PATH line looks like this:

PATH=c:\; c:\name1;...c:name#;c:\TPLUS
(where name1;...c:name# are the names of other directories in your path)

Note: This command allows you to access the TARGA+ Setup software from within any directory. If you do not add the name to your PATH line, you must go to the directory that contains the TARGA+ Setup software each time you want

You can install the TARGAP.SYS driver with default settings or optional settings.

Installing TARGAP.SYS with Default Settings

To install this driver with default settings, add the following line to the system file CONFIG.SYS: **device=[path\]targap.sys** where path is the drive and directory in which the TARGA+ Setup Software is located. EXAMPLE: device=c:\tplus\targap.sys

When you finishing editing CONFIG.SYS, reboot the computer to initialize the driver. The driver is now set up with the following defaults:

b = 0 (one TARGA+ installed)
m =A (memory segment address 0xA000)
i = 220 (base I/O address 0x220)
r = 1 (read wait states)
w = 1 (write wait states)
s = 1 (I/O wait states)
d = 4 (video overlay code - VGA only)

If you install the TARGA+ Dos driver with default parameters, you will not see TARGA+ graphics upon power up. That is because the default display parameter is VGA only. Use TPLUSTSR, TConfig, or PLUSMODE to change the display to TARGA+.

Installing TARGAP.SYS with Options

To install this driver with operating parameters of your choice, add the following line to the system file CONFIG.SYS: **device=[path]\targap.sys [(b*b*) (m*m*) (i*i*) (r*r*) (w*w*) (s*s*) (d*d*)]** (space between the options) where path is the drive and directory location of the TARGA+ Setup Software, *b* is the board number affected, *m* is the base memory address of the board, *i* is the I/O base address, *r* is the number of read wait states, *w* is the number of write wait states, *s* is the number of I/O wait states, and *d* is the VGA/Overlay Code.

Suppose you wanted to set the TARGA+ DOS driver with the following options:

TARGA+ board 1 affected, then b=0
memory segment 0xD000, then m=D
base I/O address of 0x240, then i=240
1 read wait state, then r=1
0 write wait states, then w=0
0 I/O wait states, then s=0
TARGA+ output only, then d=6

Your line would then look like this (using c:\tplus as the path and spaces between each of the options): **device=c:\tplus\targap.sys b0 md i240 r1 w0 s0 d6**

When you finish editing the CONFIG.SYS file, reboot the computer to initialize the driver.

You do not have to list all the parameter options. Whichever parameters you skip will result in the default setting for that parameter. For example, if you wanted to change only the VGA/Overlay code to TARGA+ graphics you would type: **device=c:\tplus\targap.sys d6**

Parameter Options - TARGAP.SYS

b - Board Number

Multiple TARGA+ boards can be used in a PC. In order for the TARGAP.SYS options to be applied to the correct board, you must identify the board that is to be effected by the option parameter. This option (b) provides the capability to select an installed board. The default value is zero (0) for a single board installation. The options are 0 through 7. For example, to install two (2) TARGA+ boards on a system at I/O base locations 0x200 and 0x210 you would type the following line in CONFIG.SYS:

device=c:\tplus\ targap.sys b0 i200 b1 i210

Notice that board 0 would be at location 0x200 and board 1 would be at 0x210.

m - Memory Segment Address
This sets the memory segment address for the current board. The default value is 'A' or 0xA000. The options are 8, 9, A, B, C, D, E, & F. (We recommend address D.)
For example: **device=c:\tplus\targap.sys b0 mA i220**

It is possible to have both boards share the same segment memory, but all software may not support this feature. However, each board MUST have a UNIQUE I/O base address in order to work properly. In the example below, board zero is installed at I/O location 0x220 (the default) and board 1 is installed at I/O location 0x230. Both boards are using memory segment 0xD000: **device=c:\tplus\targap.sys b0 mD b1 mD i230**

i - I/O Base Address
This determines the I/O base address of the TARGA+ and must be unique for each board in your system. The default value is 0x220 or "220". Valid numbers are 200, 210, 220, 230, 240, 250, 260, and 270. (This is the value you used to set the first three dip switches on Switch SW1.)

r - Read Wait States
This parameter sets the number of wait states the processor must insert during memory reads. Valid wait states are 0, 1, 2, and 4. The default wait state is 1. Unless your display images have missing pixels or otherwise look distorted, you
should NOT set this parameter.

w - Write Wait States
This parameter sets the number of wait states the processor must insert during memory writes. Valid wait states are 0, 1, 2, and 4. The default wait state is 1. Unless your display images have missing pixels or otherwise look distorted, you should NOT set this parameter.

s - I/O Wait States
This parameter sets the number of wait states the processor must insert during I/O operations. Valid wait states are 0, 1, 2, and 4. The default wait state is 1. Unless your display images have missing pixels or otherwise look distorted, you should NOT set this parameter.

d - VGA/Overlay Type

This parameter initializes the board for VGA/overlay. This option is available when you have the VGA pass through cable connecting your VGA and TARGA+ through their feature connectors. VGA overlay is the ability to display the VGA screen on top of the TARGA+ still graphics. In addition, you can choose what areas of your VGA display will show the TARGA+ screen. (For instance, you could have a TARGA+ image showing through VGA text or through VGA graphics.) The default parameter is "4" or VGA Only. Valid values are 4 through 7. (These VGA Overlay values can also be changed through the other TARGA+ Setup programs: TPLUSTSR, and PLUSMODE.)

Display Code	VGA Overlay Mode
4	VGA Only
5	VGA Overlay(480)
6	TARGA+ Only
7	VGA Overla(400)

The items in parenthesis labeled (400) and (480) describe the type of VGA monitor you are using.

If your VGA Resolution is:	Use this TARGA+ display code
320 x 200	Display code 7
640 x 200	Display code 7
640 x 400	Display code 7
640 x 480	Display code 5

This page intentionally left blank.

Appendix H - TMODE Display Resolutions

TARGA+ TMODE DISPLAY RESOLUTIONS

The utility TMODE is provided only for purposes of backward compatibility. We recommend all users switch to the new configuration program TCONFIG. To set a display resolution, type the following:

tmode XX <enter>

where XX is the number of the display configuration code chosen from the following list.

Display Mode Code	Description
01	NTSC, 512x400x16, underscan, interlaced
02	NTSC, 512x400x16, underscan, non-interlaced
03	NTSC, 512x400x32, underscan, interlaced
04	NTSC, 512x400x32, underscan, non-interlaced
05	PAL, 512x476x16, underscan, interlaced
06	PAL, 512x476x16, underscan, non-interlaced
07	PAL, 512x476x32, underscan, interlaced
08	PAL, 512x476x32, underscan, non-interlaced
09	NTSC, 512x486x16, overscan, interlaced
10	NTSC, 512x486x16, overscan, non-interlaced
11	NTSC, 512x486x32, overscan, interlaced
12	NTSC, 512x486x32, overscan, non-interlaced
13	PAL, 512x576x16, overscan, interlaced
14	PAL, 512x576x16, overscan, non-interlaced
15	PAL, 512x576x32, overscan, interlaced
16	PAL, 512x576x32, overscan, non-interlaced
17	NTSC, 640x480x16, interlaced
18	NTSC, 640x480x16, non-interlaced
19	NTSC, 648x486x16, square pixel, interlaced
20	NTSC, 648x486x16, square pixel, non-interlaced
21	NTSC, 720x486x16, interlaced
22	NTSC, 720x486x16, non-interlaced
23	PAL, 720x576x16, interlaced

24	PAL, 720x576x16, non-interlaced
25	NTSC, 756x486x16, interlaced
26	NTSC, 756x486x16, non-interlaced
27	PAL, 768x576x16, square pixel, interlaced
28	PAL, 768x576x16, square pixel, non-interlaced
29	Hi-Res, 800x600x16, interlaced
30	Hi-Res, 1024x768x16, interlaced
31	VGA Compatible, 512x400x16, non-interlaced
32	VGA Compatible, 640x400x16, non-interlaced
33	VGA Compatible, 512x496x16, non-interlaced
34	VGA Compatible,640x496x16, non-interlaced
35	VGA Compatible, 512x400x32, non-interlaced
36	VGA Compatible, 512x496x32, non-interlaced

Appendix I - The Single Monitor Solution

In order to use just a single monitor and switch back and forth between VGA graphics and TARGA+ graphics, you must have your system and software set up as follows:

A. Your VGA board and TARGA+ board are connected with the VGA pass through cable.

B. Your **multiscan** monitor is attached to the TARGA+ Video Out connector.

C. All of the TARGA+ Setup Software has been copied to your hard disk.

D. The TARGA+ DOS Driver is installed with a display mode of **d4**.

E. The TPLUSTSR is installed.

Now, to start your application, do the following:

1. Use the configuration program TConfig to set the TARGA+ into a display mode of your choice.

2. Start your application.

3. Press the TPLUSTSR key sequence (default key sequence = CTRL-SHIFT-F1) combination to change your display to TARGA+. (The application should appear on your screen.)

4. When you are finished, exit the application.

5. Press the TPLUSTSR key sequence (CTRL-SHIFT-F2) combination to change back to VGA display.

This page intentionally left blank.

Index

SYMBOLS

3D STUDIO, 5-1, 5-3
9-PIN D TYPE CONNECTOR, B-3

A

ADDRESSABLE RESOLUTION - PAL, E-2
ADDRESSABLE RESOLUTION -- NTSC, E-1
ADI DRIVER, 5-1
ALPHA BUTTON, 9-19
ALPHABLEND MASTERKEY, 9-14
ANALOG TO DIGITAL CONVERTERS, E-4
ANICONV, 5-7
ANIMATOR PRO VERSION 1.0, 5-4
ANIPLAY, 5-6
AUTOCAD, 5-1
AUTODESK, 5-1
AUTODESK 3D STUDIO, 5-1
AUTODESK ANIMATOR PRO VERSION 1.0, 5-4
AUTOSHADE, 5-1

B

BACKGROUND COLOR, 8-41
BIT PAD ONE GRAPHICS TABLET, 8-9
BITONE, 8-5
BLENDER MASTERKEY, 9-13
BMP, 10-3
BOARD NUMBER, 2-9, I-3
BRUSH FUNCTION, 8-40

C

CABLES, B-1
CANCELLING A CIRCLE, 8-29
CANVAS, 8-9
CAPTURE IMAGE, 10-4

CAPTURE UTILITY, 10-1
CHANGING A WORKING PALETTE, 8-44
CHROMA BUTTON, 9-19
CHROMA DISPLAY MODE, 9-19
CHROMA KEY CAPTURE DEMO, 7-1
CHROMAKEY CONTROL PANE, 9-18
CHROMAKEYER MASTERKEY, 9-14
CIRCLE FUNCTION, 8-27
CLEAR, 10-5
CLEAR FUNCTION, 8-32
COLOR FUNCTION, 8-44
COLOR MIXING, 8-45
COLOR PALETTE, 8-10
COLOR RESOLUTION, E-2
COMPOSITE IN, 2-12
COMPOSITE VIDEO INPUT ONLY, 8-34
COMPOSITE VIDEO MONITOR, D-1
COMPOSITE/S-VIDEO DECODER, E-3
COMPOSITE/S-VIDEO ENCODER, E-3
CONFIGURATION PROGRAM, 2-1, 10-2
CONFIGURATION SCREEN, 2-9
CONNECTORS, 1-23
CONNECTORS, B-1, B-3
CONTROL PANEL, 9-5
CONTROL PANEL - MAIN SCREEN, 9-5
COORDINATES, 8-14
COPY, 10-5
CSAVE, 8-50
CURRENT SELECTIONS, 8-14
CURSOR, 8-10
CURSOR AND SCREEN COORDINATES, 8-14
CURSOR BRUSH, 8-40
CUSTOMER SUPPORT, F-1

D

DATA TRANSFER SIZE, 2-13

DEVELOPERS, D-4
DIGITAL CHROMA KEYER, E-4
DIGITAL LINEAR KEYER (MIXER), E-4
DIGITAL TO ANALOG CONVERTERS, E-4
DISPLAY RESOLUTIONS, H-1
DO MODE, 2-1
DOS DRIVER, 3-1, I-1
DOS FUNCTION, 8-54
DRAW FUNCTION, 8-18
DRAW GUIDES, 2-6
DRAW/ERASE, 8-42
DRIVER, 3-1, I-1

E

EISA CONFIGURATION UTILITY, 6-1
EMM MANAGER, D-1
EXIT, 2-5
EXIT TO DOS FUNCTION, 8-54
EXPANSION SLOTS, D-1

F

FEATURES, E-1
FEATURES OF DEMO TIPS, 8-2
FILE MENU, 2-4
FILE OPERATIONS, 8-49
FILE SUBMENUS, 8-47
FILENAMES, 8-48
FILL, 8-43
FILLED CIRCLE, 8-28
FIT IMAGE TO WINDOW, 10-6
FIT WINDOW TO SCREEN, 10-6
FLIP HORIZONTALLY, 8-26
FLIP VERTICALLY, 8-26
FRAMED MOVE ATTRIBUTES, 8-22
FRAMED WINDOW ATTRIBUTES, 8-53

FULL IMAGE - WINDOW ONLY - SHOWME APP, 11-4
FUNCTION MENU, 8-17
FUNCTIONS - DEMO TIPS, 8-16

G

GAIN BUTTONS, 9-19
GAMMA CORRECTION, 9-11
GENLOCK, 2-9
GET, 8-41
GO LIVE, 2-6
GRAB FUNCTION, 8-33
GRAPHICS TABLET, 8-5

H

H-PHASE, 2-12
HARDWARE AND SOFTWARE REQUIREMENTS, 1-1
HARDWARE CONFIGURATION SCREEN, 2-13
HARDWARESETUPSCREEN, 2-8
HELP, 2-5
HORIZONTAL PHASE, 9-11
HORIZONTAL PHASE, 2-12
HOST COMPUTER, E-1
HOST COMPUTER I/O INTERFACE, E-6
HOST COMPUTER INTERRUPTS, E-6
HOST COMPUTER MEMORY INTERFACE, E-6
HOT, 8-43
HOUSE SYNC, D-2

I

I/O BASE ADDRESS, 2-13, I-4
I/O WAIT STATES, I-4
IMAGE INFO - SHOWME APPLICATION, 11-5
IMPORTANT CONCEPTS - DEMO TIPS, 8-8
INPUT BUTTON, 9-8
INPUT CONNECTOR, B-2

INPUT-OUTPUT, 9-6
INPUT/OUTPUT CONNECTORS, E-5
INTERACTIVE, 2-1, 2-6
INTERLACE, 2-10
INTERLACE MASTERKEY, 9-13
INTERLACED DISPLAY RESOLUTIONS, E-3
INTERLACED VS. NON-INTERLACED MODE, 8-14
INTERRUPTS, 1-14
INTRODUCTION TO DEMO TIPS, 8-1
INTRODUCTION TO TARGA+, 1-2
INVALID OPTIONS, 2-2
INVERT SCREEN, 8-38

J

JUMPERS, C-4

K

KEY COLOR, 9-17
KEYBOARD OPERATION, 2-1
KEYCOLOR BUTTON, 9-17
KURTA IS/ONE TABLET, 8-5

L

LIGHTING TIPS, 7-3
LINE FUNCTION, 8-19
LIVE MASTERKEY, 9-15
LOAD, 2-4, 8-50

M

MAIN MENU, 8-11, 8-16
MAIN MENU SELECTIONS, 8-15
MAIN SCREEN, 9-5
MAINTAIN ASPECT/AVOID JAGGIES-SHOWME APP, 11-4
MAINTAIN ASPECT/FILL PAGE-SHOWME APP, 11-4
MASTERKEY SECTION, 9-12

MECHANICAL, E-7
MEMORY BASE ADDRESS, 2-13
MEMORY CONFIGURATION, E-1
MEMORY SEGMENT ADDRESS, I-4
MENUS, 8-11
MENUS AND FUNCTIONS - DEMO TIPS, 8-16
MINIMUM SYSTEM REQUIREMENTS, 8-4
MOUSE, 8-5, 8-8
MOVE FUNCTION, 8-21
MOVING MENUS, 8-11
MULTISCAN, 3-1, I-1

N

NON-INTERLACED DISPLAY RESOLUTIONS, E-2
NORMAL, 9-19
NORMAL DISPLAY MODE, 9-19
NOT KEY COLOR PIXELS, 9-17

O

ON AND OFF, 8-37
OPEN, 10-3
OPERATING ENVIRONMENT, E-7
OPERATION MODE, 2-9
OPERATION MODES, E-6
OUT MASTERKEY, 9-15
OUTPUT BUTTON, 9-10
OUTPUT COLOR LOOK UP TABLE, E-2
OUTPUT CONNECTOR, B-2

P

PAGE SETUP, 10-6
PAINT MOVE, 8-24
PAN AND ZOOM, 8-12
PASTE, 8-23, 10-5
PATH, 9-4

PATH LINE, I-1
PHASE: HORIZONTAL OR SUB-CARRIER, 2-12
PIN NUMBER, B-2
PIXEL DEPTH, 2-10
PIXELS, 8-10
POWER CONSUMPTION, E-7
PRINT, 10-4
PRINTER SETUP, 10-4
PRINTER SETUP-SHOWME APP, 11-4
PROGRAMMABLE HARDWARE ZOOM AND PAN, E-5
PROGRAMMABLE PIXEL CLOCK, E-5
PROPORTIONAL SHRINK OR ENLARGE, 8-24

Q

QUICK INSTALLATION, 1-5
QUIT, 10-4
QUITTING, 10-4

R

RCPTARGP.EXP, 5-1
READ WAIT STATES, I-4
RECALLING MENUS, 8-12
RECTANGLE FUNCTION, 8-19, 8-20
REGULAR MOVE, 8-23
RESIZING AN IMAGE, 10-4
RESOLUTION, 2-9
RESTORE, 9-13
RESTORE FUNCTION, 9-13
RETURNING TO A HIGHER MENU, 8-12
RETURNING TO DOS, 8-12
RGB IN, 2-12
RGB MONITOR, D-1
RGB OUT, 2-12
RGB SOURCES, 9-7
ROTATE, 8-24

S

SAFE TITLE AREA, 8-13
SAVE, 2-4, 8-49, 10-3
SAVING AND LOADING A WINDOW, 8-52
SCALE OPTION - SHOWME APP, 11-5
SCREEN COORDINATES, 8-14
SCROLL BAR, 8-48
SELECT AND CANCEL, 8-8
SELECTING A FUNCTION, 8-11
SELECTING A KEY COLOR, 9-17
SET SCREEN, 8-38
SHIFTING A BRUSH, 8-42
SHOW CLIPBOARD, 10-5
SHOWME IMAGE CONVERTER, 11-1
SHOWME INSTALLATION, 11-1
SINGLE MONITOR, 8-7
SINGLE MONITOR, 2-2
SINGLE MONITOR SOLUTION, 8-7
SINGLE MONITOR SOLUTION, 3-1, I-1
SINGLE-MONITOR-SOLUTION, 1-24
SMOOTH/ROUGH, 8-25
SPECIAL EFFECT MENU, 8-36
SPECIAL MENU, 2-5
SPECIFICATIONS, E-1
SPREAD A RANGE OF COLORS, 8-45
STARTING DEMO TIPS, 8-7
STARTING TIPSDEMO, 8-6
STORAGE FUNCTION, 8-47
SUBCARRIER INFORMATION, 9-7
SUBCARRIER PHASE, 9-10
SUMMAGRAPHICS, 8-5
SW1 SWITCH, 1-9
SW2 SWITCH, 1-12
SW3 SWITCH, 1-14
SWITCHES, 1-14

SWITCHES ON THE TARGA+, 1-8

T

TARGA+ ADI DRIVER, 5-1
TARGA+ CONFIGURATION PROGRAM, 2-1
TARGA+ DOS DRIVER, 3-1, I-1
TARGA+ DOS DRIVER, I-1
TARGAP.DRV, 4-4
TARGAP.LGO, 4-5
TARGAPHR.DRV, 4-4
TARGAPLS.DRV, 5-4
TARGLOGO.DAT, 4-5
TCONFIG, 10-2
TEXT FUNCTION, 8-30
TGA, 10-3
TIPSDEMO MAIN MENU, 8-11
TMODE DISPLAY RESOLUTIONS, H-1
TPLUSTSR, 3-1, 3-2, I-1
TRANSPARENT, 8-26
TROUBLESHOOTING, C-1
TROUBLESHOOTING - DEMO TIPS, 8-55
TSR, 3-2
TUNING SCREEN, 2-8, 2-12

U

UB-CARRIER, 2-12
USE FULL PAGE - SHOWME APP, 11-4
USING SHOWME, 11-1
USING THE SLIDERS, 9-17

V

VALUE SLIDER, 8-38
VGA BOARD, 1-17
VGA PASS THROUGH, 1-20, 3-2
VGA PASS THROUGH AND OVERLAY, E-3

VGA PASS THROUGH MASTERKEY, 9-15
VGA/OVERLAY TYPE, I-5
VIDEO, 8-36
VIDEO FUNCTION, 8-36, 8-37
VIDEO INPUT, 8-6
VIDEO INPUT SOURCE, 9-6
VIDEO INPUT TYPE, 2-9
VIDEO ONLY, 8-38
VIDEO SIGNAL, 2-9
VIDEOVGA™, D-3
VIDI/O, 9-2
VIDI/O SECTION, 9-6

W

WDINSTAL.EXE, 4-5
WDINSTAL.INF, 4-5
WINDOW MENU, 2-5
WINDOWS 3.0 DISPLAY DRIVER, D-4
WORKING PALETTE, 8-17, 8-44
WRITE WAIT STATES, I-4

Z

ZOOM, 8-12
ZOOM, D-2
ZOOM MASTERKEY, 9-14